Perceived Barriers to Career Self-Exploration for Adults with Learning Disabilities

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PERCEIVED BARRIERS TO CAREER SELF-EXPLORATION FOR ADULTS WITH LEARNING DISABILITIES

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Abstract

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Research regarding the career exploration process for adults with reading disabilities and ADHD who participate in Adult Basic Education (ABE) programs is limited. Due to a lack of career development resources in ABE programs, adults with reading disabilities and ADHD do not always have the opportunity to engage in career exploration activities that might help them make satisfying career decisions. In career development theory, self-determination is the capacity to identify personal goals and is considered crucial to overcoming barriers and making meaningful career choices. In the present study, a model was proposed and tested that examined self-determination as a mediator of the hypothesized relationships between perceived career and educational barriers and career development outcomes.

Adults with reading disabilities and ADHD from ABE programs ($N = 83$) completed a demographic questionnaire and screening measures intended to classify them according to type of disability (i.e., reading, ADHD, and combined reading and ADHD). They also completed measures of perceived educational and career barriers, components of self-determination, and career self-efficacy.

Multivariate multiple regression analyses were used to investigate hypotheses derived from the proposed model. The results revealed that experiences of perceived educational barriers, but not career barriers, were related to low levels of career decision-making self-efficacy and self-determination; the competence component of self-

determination was associated with higher levels of career decision-making self-efficacy. Overall, the results suggested that self-determination partially mediated the relationship between perceived educational barriers and career decision-making self-efficacy. The findings indicate that, for ABE adults with reading disabilities and ADHD, having a sense of one's own expertise is important for overcoming barriers and feeling confident in making career decisions. Discussions included methodological limitations and implications for practice and research.

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Chapter 1

Introduction

Very little psychological research has focused on the career development of adults with learning disabilities. In the United States, 3.9 million or 1.6% of adults has a diagnosed learning disability (United States Census Bureau, 2010a). The National Research Center for Learning Disabilities (NRCLD) suggests that a specific learning disorder or learning disability is an environmental or genetic disability involving unanticipated neurological deficits that negatively affect learning and cognition. Excluded from the diagnostic criteria are mental retardation, disabling conditions (e.g., sensory impairments, emotional distress), cultural differences (e.g., race and socioeconomic status), and lack of effort (NRCLD, 2007).

As of 2010, 12% of the adults living in the U.S. do not have a high school diploma (United States Census Bureau, 2010a). Dropout rates are higher for young adults with learning disabilities than for their peers without learning disabilities (Stetser & Stillwell, 2014; Taymans, 2009). The U.S. Department of Education reports that only 61% of students with learning disabilities graduate from high school (Stetser & Stillwell, 2014). Furthermore, 2.5% of adults in the US are enrolled in Adult Basic Education (ABE) programs (U.S. Census Bureau, 2010a). The goal of ABE programs is to provide services to adults who are educationally disadvantaged. Of those adults who are enrolled in ABE programs, many have either a diagnosed or undiagnosed learning disability (Kutner, Greenberg, Jin, Boyle, Hsu, & Dunleavy, 2007; Taymans, 2009). More specifically, it has been found that from 10% to 50% of adults enrolled in adult basic education programs has a learning disability (Corley & Taymans, 2002).

Early studies of diagnosis of learning disabilities showed that learning disabilities are life-long diagnoses that can become more severe throughout adulthood (Gerber, Schnieders, Paradise, Ginsberg, & Popp, 1990). However, many adults believe that their learning difficulties will not affect their educational or occupational opportunities or work environments (Taymans, 2012). Moreover, there is a misconception among students with learning disabilities, who are making transitions from school to work, that their learning disability will disappear in adulthood (Cummings, Maddux, & Casey, 2000). As a result, adults do not seek services or support because they believe that a formal diagnosis received during secondary schooling is no longer applicable (Gerber & Price, 2003). In essence, not seeking services creates a bigger issue for ABE learners. Due to not having proper documentation or diagnosis of their learning disability, ABE learners are unable to understand their strengths and weaknesses, which in turn can affect their career choices (Gregg, 2012).

Unfortunately, empirically based research about the employment challenges faced by adults with learning disabilities is limited. Gerber, Ginsberg, and Reiff (1992) identified some internal (e.g., desire, goal orientation, and reframing) and external (e.g., persistence, goodness of fit, and learned creativity) factors that contribute to career success for adults with learning disabilities. However, most of the research about the employment challenges faced by adults with learning disabilities has narrowly focused on career success or what happens to the person after she or he is employed, but has not examined the career choice process. Therefore, to facilitate positive career opportunities and outcomes for persons with reading disabilities and ADHD in the workplace, it is important to understand the factors that contribute to how they make career decisions.

External Barriers to Employment

Adults with learning disabilities struggle with barriers in the workplace and limited access to employment opportunities, as well as intrapersonal concerns (Ochs & Roessler, 2001). Some research suggests that employers may have greater concerns about hiring individuals with learning disabilities than individuals without learning disabilities or those with any other types of disability and, consequently, the employment opportunities for adults with learning disabilities are limited (Unger, 2002). Specifically, Cortiella and Horowitz (2014) reported that, in 2010, less than 46% of adults with a learning disability were employed, which was a 9% decline since 2005. Although there was an overall increase in unemployment, from 2005 to 2010, 8% of adults with a learning disability were unemployed as compared to 6.4% without a learning disability. Additionally, the percentage of those with learning disabilities not in the labor force (i.e., 46%) was the same as the percentage of those without learning disabilities who were employed (Cortiella & Horowitz, 2014). Thus, the evidence is indirect, but suggests the possibility that employers may be biased against adults with learning disabilities. However, it is not clear to what extent adults with reading disabilities and ADHD anticipate or perceive these systemic employer barriers when they are considering their employment options.

Perhaps because of employer concerns, adults with reading disabilities and ADHD struggle with the issue of whether or not they will engage in self-disclosure about their disability. According to Cortiella and Horowitz (2014), of the employed adults with learning disabilities in the United States, only 19% reported that they disclosed to their employer and only 5% reported receiving accommodations. Madaus (2008) found that

73% of college graduates admitted that their learning disability affected their work, but only 55% actually self-disclosed to their employer about their learning disability and only 12% reported requesting accommodations. Those who enter the work environment may have a variety of neurological conditions (e.g., impaired decoding skills, poor sight vocabulary, and slow reading rates) that may cause extreme difficulty with respect to their capacity to function optimally in their work (Shapiro & Rich, 1999). Therefore, they might not have disclosed their challenges for fear that doing so would negatively affect their relationships with supervisors and coworkers as well as their job security.

Intrapersonal Barriers

Working is one of the ways in which people are able to experience optimal self-determination, which is achieved by "identifying personal goals and making decisions about one's quality of life" (Scanlon, Patton, & Raskind, 2011, p. 602). In the work environment, feelings of authenticity, connection to colleagues, and a sense of mastery are essential for a self-determined or intrinsic level of motivation at work (Blustein, 2006). However, in order to become self-determined, there must be opportunities where skills such as goal setting, self-awareness, and problem solving can be learned (Wehmeyer, Sands, Doll, & Palmer, 2006). Although the Individuals with Disabilities Education Act (IDEA) requires self-determination training (i.e. self-advocacy) for adults with learning disabilities, the opportunities to learn such skills in an ABE environment are scarce (IDEA, 1997; Mellard & Lancaster, 2003; Scanlon et al., 2014). Unfortunately, the curriculum requirements and overall structure of ABE programs prevent service providers from implementing self-determination training (Taymans, 2009). Therefore, adults with reading disabilities ADHD or in ABE programs may not feel empowered to

seek occupations or develop skills that satisfy their needs to feel competent and autonomous.

Moreover, as stated earlier, many adults with learning disabilities believe that they will outgrow the disability (Cummings et al., 2000). Unfortunately, this type of thinking hinders the process of becoming self-determined. For example, not acknowledging the disability reduces the person's chances of self-advocating and communicating his or her needs (Scanlon et al., 2014). Moreover, a lack of self-determination for adults with learning disabilities can lead to low career outcome expectations regarding job satisfaction and promotion opportunities (Witte, Phillips, & Kakela, 1998). Most adults with learning disabilities remain in entry-level positions despite receiving vocational training that would qualify them for better positions, which may contribute to their lower career outcome expectations (Shapiro & Lents, 1991).

Career Exploration

Unfortunately, adults with reading disabilities and ADHD leave the secondary school setting without much guidance as to how to navigate the career exploration process. Also, most ABE programs are significantly underfunded and as a result are not able to provide helpful courses to assist the students in gaining and maintaining employment (Mellard & Lancaster, 2003). Adults with learning disabilities reported that they were sometimes overlooked in career exploration activities during their secondary education (Lichenstein, 1993). Moreover, many of them were unaware of the services that are available to them otherwise (Dipeolu, 2011; Mellard & Lancaster, 2003). Those who were able to use services encountered other barriers that hindered their career exploration process (i.e. time and money). For example, Mellard and Lancaster (2003)

acknowledged that participation in educational and vocational services would potentially require additional time off from work and financial assistance for those without adequate economic resources to help support themselves while they were participating in these services. Various authors have suggested that adults with learning disabilities ought to seek career counseling services to assist with the career exploration process, but adults may become overwhelmed with the planning and decision making aspects of the process, particularly if they have not developed the capacity for self-determination. Therefore, although guidance with respect to career exploration activities has been strongly recommended (Dipeolu, 2011; Dipeolu, Sniatecki, Storlie, & Hargrave, 2013), such guidance is not likely to be very helpful in the absence of information about how adults with reading disabilities and ADHD engage in career exploration.

Psychology of Working Perspective

Currently, there are few theoretical perspectives that focus specifically on the role of work in the lives of adults with reading disabilities and ADHD from the perspectives of the affected individuals. However, more generally, working is seen as a central component (or attribute) in regards to the economic, social, and psychological welfare of adults (Blustein, Kenna, Gill, & DeVoy, 2008). Blustein's (2006) psychology of working perspective seeks to address work-related needs of underserved populations. His perspective does not solely focus on work-related issues; rather it is an inclusive theoretical perspective in which work is seen as one of the central parts of the human experience (Blustein et al., 2008).

The psychology of working perspective examines the psychological meaning of work to individuals by exploring their needs for survival and power, connection, and self-

determination (Blustein, 2008). More specifically, self-determination examines the ways in which work can provide meaning and satisfaction (Blustein, 2006). Investigating the intersections between self-determination and the career exploration process for adults with reading disabilities and ADHD could provide valuable insight into the nature of work for them because work theory considers the psychological impact of work on persons who may not be intrinsically interested in their work (Blustein, 2006).

In order to truly understand the process of career development of adults with learning disabilities, the barriers to obtaining intrinsically motivating work need to be examined. Without a thoughtful examination, we are neglecting to acknowledge the reality that work may be an important aspect of their survival just as it is for adults without reading disabilities and ADHD. Therefore, it would be helpful to know the ways in which self-determination reflects career decision-making outcomes for adults with reading disabilities and ADHD. Such research would assist in the development of effective career interventions and policies for adults with learning disabilities.

Purpose of Present Study

The goals of this study are to understand the ways in which perceptions of work barriers and levels of self-determination affect career exploration for adults with learning disabilities. Adults with reading disabilities and ADHD, who participate in ABE programs, are likely to have fewer opportunities than other adults to explore career interests that are intrinsically motivating due to lack of guidance from service providers. Consequently, their employment options may be limited not only because of external barriers, such as actual or perceived employers' attitudes, but also because they may not have acquired sufficient knowledge about themselves to set personally meaningful career

goals and to make appropriate decisions about the kinds of work they want to do. Therefore, examining the career development process of this population will provide information about the types of services that can best assist in facilitating positive work outcomes for persons with reading disabilities and ADHD.

Chapter 2

Review of Literature

The present study examined aspects of the career self-exploration process for adults in Adult Basic Education programs, almost half of whom allegedly have undiagnosed reading disabilities and ADHD (Corley & Taymans, 2002). Most of the research concerning the career development of individuals with learning disabilities has focused on high school or college graduates. As a result, adults with reading disabilities and ADHD in adult education programs (ABE), who are neither high school graduates nor college students, often have been excluded from the career development literature. Furthermore, given that some studies suggest that adults with learning disabilities may not make career decisions that fit their skills because of perceived or actual employment barriers (Duquette & Fullarton, 2009), self-determination or lack of self-determination has been identified as a characteristic that might influence their decision-making process. Yet no model exists for explaining the ways in which self-determination and career planning might be affected by the perception of barriers for adults with reading disabilities and ADHD, especially for those who participate in ABE programs.

This literature review provides theoretical and empirical support regarding the need for further research to understand the career exploration process of adults with learning disabilities. It focuses on (a) adult basic education programs as the locale of large numbers of potentially undiagnosed adults with learning disabilities, (b) career exploration processes of adults with learning disabilities, (c) ABE adults' perceptions of barriers that may inhibit their capacity to develop self-determination, (d) self-determination as a motivator of the career exploration process, and (e) career self-

efficacy as an initial step toward seeking meaningful work. Each of these topics will be addressed as they pertain to adults with learning disabilities.

Adult Basic Education

The main goal of adult basic education (ABE) programs is to prepare their students for the General Education Development Examination (GED). According to Westberry (1994), the GED exam consists of five subtests that aim to assess skills in mathematics, writing, social studies, literature, and science. Some research shows that students enrolled in ABE programs have lower literacy levels than those who participate in other adult training programs (Taymans, 2009), and Scanlon and Lenz (2002) found that the majority of ABE programs focused their interventions on enhancing literacy and workforce skills of adults with learning disabilities.

However, due to lack of staff training focused on developing appropriate accommodations and recommendations, ABE programs face significant barriers to providing services and accommodations that adhere to the standards of the Americans with Disabilities Act (ADA) with respect to career development (Polson & White, 2001). Therefore, it is important to examine barriers reported by directors of ABE programs or researchers because barriers confronted by educational institutions may potentially have implications for the kinds of career exploration activities needed by adults with learning disabilities.

ABE Service Delivery and Prevalence Estimates

Most researchers have focused on the prevalence rates of adults with learning disabilities participating in ABE programs and the extent to which lack of resources affects the educational and career outcomes of students enrolled in the programs rather

than studying students' own perceptions of their barriers. Ryan and Price (1993) surveyed directors (N =52) of ABE programs across the 50 U.S. states about the prevalence of students in their programs with learning disabilities and the nature of diagnostic services and training received by ABE educators concerning learning disabilities.

Most of the directors (60%) in Ryan and Price's (1993) indicated that the prevalence of students with learning disabilities ranged from 15%-40% and an additional 21% of the directors indicated that they suspected that more than half of their students had a learning disability. For students who sought diagnostic services, 50% of the directors had referred them to state agencies, such as rehabilitation services; 27% provided free onsite assessments of learning disabilities; and 4% referred them to private agencies. With respect to the types of training that was made available for ABE instructors, most of the directors (85%) indicated that in-service training was provided regarding students with learning disabilities, but the remaining 15% were either unaware of training opportunities or the instructors were responsible for seeking out specialized training themselves.

Thus, the results of Ryan and Price's (1993) survey suggest that learning disabilities have high prevalence in ABE programs, but the available data are rather soft estimates and some students who should have been diagnosed may not have been. Moreover, although most instructors may receive training related to learning disabilities, it is not clear from their study how the training is related to students' outcomes, especially with respect to career development, nor how it pertains to carrier barriers from the perspectives of students.

Prevalence and Student Characteristics

Patterson (2008) investigated student demographic characteristics and ABE outcomes (e.g., learning gains, GED, and employment) of students with learning disabilities. With regards to student characteristics, Patterson found, through a secondary data analysis of 31 government-funded adult education programs in Kansas, higher prevalence of diagnosed learning disabilities for adults younger than 25 than for adults older than 45years old; and most participants had completed at least two years of high school. Moreover, adults with learning disabilities, who had participated in ABE programs, achieved their educational goals of increased learning gains and obtaining a GED. However, their employment outcomes were more complicated in that participants had difficulty obtaining employment, but not maintaining or improving their employment status. In other words, the major obstacle for those with a diagnosed learning disability was getting a job, not keeping a job. Therefore, Patterson (2008) recommended that future researchers investigate career outcomes and their implications for adults with learning disabilities.

The previously cited studies suggest that adults with and without learning disabilities co-exist in ABE programs. Mellard and Patterson (2008) examined differences in the needs and demographic characteristics of adults with and without learning disabilities in ABE programs. They used a sample of adults (N=311) from 13 Adult Education and Family Literacy Act programs (not including those focused on English as a second language). In their sample, 29% of the adults indicated that they had one or more learning disabilities, and 2% were unclear as to whether they had a learning disability.

Mellard and Patterson (2008) used reading comprehension, functional literacy (e.g., competency in reading policy manuals), and general intelligence to infer ABE students' needs. The authors reported their findings in three categories: (a) demographic characteristics, (b) academic skills and competencies, and (c) life experiences. For the demographic descriptors, they unexpectedly found that participants, who ranged in age from 46 to 55 years old, were more likely to self-report having a learning disability, which seems inconsistent with Patterson's (2008) findings. The researchers suggested that their sample may have waited longer than the expected 8 years since dropping out of high school to participate in ABE programs.

In the category of academic competencies, the researchers found that the adults with learning disabilities had lower IQ scores than adults without learning disabilities, lower National Reporting System (NRS) reading levels, and they were more likely to report experiencing reading challenges as a child than were adults without learning disabilities. Nevertheless, the adults with learning disabilities were more likely to have completed high school than were those without learning disabilities, even though they still faced significant academic challenges.

Lastly, with respect to life experiences, specifically employment experiences, there were significant differences between those with and without learning disabilities. Participants with learning disabilities were more likely to perceive their writing and reading skills as barriers to obtaining employment. This finding suggests that perceived or actual deficits in skills typically acquired in educational settings were perceived as barriers to adequate career opportunities.

Based on their findings, Mellard and Patterson (2008) contend that the perception of employment barriers for adults with learning disabilities may be preventing them from pursuing attainable career opportunities and should be the focus of subsequent research. However, they did not use or recommend a conceptual framework for explaining how these adults might plan their own careers despite perceived barriers.

Career Self-Efficacy

Adults with reading disabilities and ADHD have limited opportunities to build self-efficacy with respect to career exploration. In order to make meaningful career decisions, they need to be able to engage in accurate self-appraisal of their abilities, skills, and the effects of their disabilities on their opportunities and employment contexts. Social Cognitive Career Theory (SCCT) postulates that self-efficacy or beliefs in one's abilities and skills are interactive in that beliefs are affected by contextual factors and contextual factors are influenced by beliefs (Lent, Brown, & Hackett, 1994). Career self-efficacy is defined by the person's beliefs in his or her abilities to achieve career goals in the face of possible contextual barriers (Lent, Brown, & Hackett, 1994).

Career Decision-Making Self-Efficacy

Career decision-making self-efficacy has been shown to have profound effects on career outcomes for adults with learning disabilities. SCCT suggests that perceived efficacious career opportunities and the person's positive outcome expectations shape their career choice and related actions. Individuals develop choice goals and implement actions that align with their interests, if they are able to overcome real or perceived barriers. Thus, individuals develop career decision-making self-efficacy if they believe they can reach desired goals, are able to accurately connect their behaviors to career

outcomes, and engage in planning activities, which lead to fulfillment of their ultimate goal(s) (Betz & Luzzo, 1996).

Ochs and Roessler (2004) used aspects of the SCCT model to explain the career exploration process of high school students with and without learning disabilities. The researchers contended that SCCT variables such as self-efficacy, goal setting, and outcome expectations were important components of the career exploration process of their student sample. For example, they hypothesized that self-efficacy beliefs would determine whether students with learning disabilities develop the initiative to engage in career exploration activities. The students' involvement in career exploration activities was proposed as a factor that increased their career outcome expectations.

In two studies using the same sample of high school students (N = 194) with and without learning disabilities, Ochs and Roessler (2001; 2004) tested their version of the SCCT model. The researchers divided the sample into groups that they labeled special education (N=95), learning disabilities (N= 72), mental retardation (N = 16), other disabilities (N=7), and general education (N = 99). The researchers used a quantitative methodology and found that students with disabilities demonstrated a moderate level of confidence with regard to career decision-making self-efficacy (CDMSE) and academic expectations. Also, they found that, due to lack of exposure to career planning activities, the students were unprepared to initiate and engage in future career decision-making tasks. Therefore, Ochs and Roessler (2001) suggested that educators need to evaluate and improve the career exploration activities that they provide to address the specific needs of students with reading disabilities, ADHD, and other disabilities.

In their second study, Ochs and Roessler (2004) examined career exploration among students with (*N*=77) and without learning disabilities (*N*=99). Quantitative measures were used to conduct correlation and regression analyses. The researchers found that students with learning disabilities exhibited lower levels of CDMSE and had lower outcome expectations than the students without learning disabilities. As a result of their findings, they concluded that career exploration activities should be based on components of SCCT (i.e., career and academic outcome expectations, and career self-efficacy) as a means of overcoming individuals' low levels of career self-efficacy and low career expectations, with specific attention being given to the effects of contextual factors. More specifically, students gain confidence in their abilities to plan and pursue various careers.

Luzzo, Hitchings, Retish, and Shoemaker (1999) hypothesized that college students with learning disabilities are especially unaware of how to engage in career development activities. The authors used surveys to examine the differences in CDMSE and career decision making attributional style among college students with (*N*=50) and without (*N*=71) learning disabilities. They used one-way analyses of variance to compare college students with learning disabilities, college students without learning disabilities, and college students with other disabilities (e.g., autism or physical disabilities).

Luzzo et al. (1999) found that college students with learning disabilities had lower levels of CDMSE than those without learning disabilities, and were less likely to believe that career-related outcomes were within their control. In other words, they assumed that their career- related outcomes could not be changed through their own personal effort because they had low levels of confidence in their abilities and skills. Therefore, the

results of Luzzo et al.'s study suggest that there is a need for more CDMSE focused research to better understand factors contributing to career-related outcomes for individuals with reading disabilities and ADHD.

In an effort to better understand the career development needs of college students with learning disabilities, Hitchings, Luzzo, Ristow, Horvath, Retish, et al. (2001) conducted semi-structured interviews with undergraduates with learning disabilities (N = 97). About 25% (n = 25) of the participants indicated that they had not received a formal learning disability diagnosis prior to their post-secondary education. Based on their analysis of students' narratives, Hitchings et al. (2001) found that college students with learning disabilities experienced a lack of transition planning, in that only 8% participated in planning meetings with counselors regarding course or college selection. Moreover, the participants demonstrated an inability to articulate how they anticipated that their disability would affect their careers. As a result, participants were unsure of how they would address or request accommodations from future employers.

To explicate their findings further, Hitchings, Johnson, Luzzo, Retish, Hinz, et al. (2010) used a mixed methods approach to investigate the career development needs of community college students with and without learning disabilities (N = 64; 36 of whom had a learning disability). More specifically, they wanted to determine whether the two groups' CDMSE and career-decision making attributional styles (e.g., causality, stability, and controllability) differed. Also, they wanted to (a) compare common career exploration activities of those with and without learning disabilities, (b) discover how participants defined their disability as well as (c) how their disability affected their career decisions.

Similar to previous findings, Hitchings et al. (2010) found that students with learning disabilities had significantly lower CDMSE, specifically relating to problem solving skills, and ability to self-evaluate their skill levels. Moreover, although students with learning disabilities expressed confidence in engaging in the career decision-making process, they demonstrated an inability to identify potential barriers associated with having a learning disability.

Summary. In sum, studies that have addressed career self-efficacy of adults or emerging adults with learning disabilities have identified several gaps in their career development. Relative to students without learning disabilities, some studies have found that these students' lack self-efficacy with respect to career development activities, such as gathering information, selecting goals, and implementing plans (Hitchings et al., 2010; Luzzo et al., 1999; Ochs & Roessler, 2004). Others have found that students may not know that they have a disability and therefore may not recognize factors (e.g., reading skills) that might constitute career barriers (Taymans, 2009). Most of the cited studies have been conducted in traditional educational settings (e.g., high school, college). Therefore, studies of adults in ABE programs with reading disabilities and ADHD seem even more warranted.

Job Satisfaction

Adequate levels of career self-efficacy may also be related to whether adults with learning disabilities are satisfied with their work if they are employed. Madaus, Ruban, Foley, and McGuire (2003) attempted to identify which characteristics explained job satisfaction for college graduates with learning disabilities. The researchers used the same sample as Madaus, et al. (2002); but, due to missing data, the final sample size was

reduced (*N*=75). Their results revealed that college graduates, who applied their goal setting and time management skills to work-related tasks and described themselves as confident in their job skills, were more satisfied with their employment.

In an effort to expand upon the findings that self-management skills were related to job satisfaction, Maduas, Zhao, and Ruban (2008) used a sample from previous studies by Madaus (2006a;2006b). The researchers discovered that although the use of self-regulation strategies (e.g., goal setting) differed from their previous study, they were still positively related to job satisfaction. Also, Madaus et al. (2008) found that writing, processing information, and reading comprehension had the greatest effects on work productivity for college graduates with learning disabilities. More generally, Madaus et al.'s findings suggested that self-efficacy served as a predictor of job satisfaction.

Although not related to career self-efficacy directly, Witte, Philips, and Kakela's (1998) study raises the possibility that not having a disability diagnosis may be related to job satisfaction for adults with learning disabilities. They surveyed a sample of college graduates with (*N*=55) and without (*N*=55) learning disabilities. Only 53% of the participants with a learning disability had received a formal diagnosis during college. The survey examined job satisfaction with work relationships, work environment, use of accommodations, supervision, compensation, and promotion. Witte et al.'s results indicated that the graduates with learning disabilities perceived themselves to have had fewer opportunities for job growth and lower wages. Additionally, those without disabilities indicated low evaluations for work satisfaction, supervision, and relationships with colleagues. Contrary to previous findings for college graduates with learning

disabilities (i.e., Greenbaum et al., 1996), the participants reported higher job dissatisfaction than the graduates without learning disabilities.

Summary. Overall, the findings reveal that the career exploration process differs for those with reading disabilities and ADHD as compared to students with other types of disabilities or without disabilities. However, studies such as Ochs and Roessler (2001) did not exclude participants with other disabilities (e.g., mental retardation) from their analyses. As a result, the sample was not appropriate in terms of generalizing to the population of people with reading disabilities and ADHD. Additionally, none of the studies reported or examined the influence of perceived barriers on the SCCT components that allegedly influence career-decision making self-efficacy. Further study of the career exploration process for adults with reading disabilities and ADHD is needed. More specifically, an examination of those, who are participating in ABE programs, will provide an understanding and awareness of the needs of those who did not complete high school or attend college.

Perception of Barriers

Perception of barriers is delineated by the specific ways in which people interpret and respond to contextual factors (Lent, Brown, & Hackett, 2000; McWhirter, 1997) and it may play an important role in career development (Lease, 2006; Luzzo & McWhirter, 2001; McWhirter, Rasheed, & Crothers, 2000). Researchers have postulated that the perception of barriers explains the ways in which career interests and goals are formulated and implemented (Lent et al., 1994; McWhirter et al., 2000). Lent et al. (1994; Lent et al., 2000) contend that SCCT acknowledges that proximal and distal contextual factors influence perceptions of barriers with respect to the career

development process. *Proximal factors* are personal experiences that provide the person with critical information that inform the person's career decision-making process prior to and after career decisions have been made. Experiences of discrimination due to one's reading disability and ADHD might influence career-planning as well as whether one chooses to disclose one's disability to one's employer, *Distal factors* are contextual circumstances that provide the person with opportunities that facilitate the person's formation of interests, development of self-efficacy, and positive outcome expectations. Disability legislation is an example of potentially effective distal factors. Although proximal factors, such as race and gender, have been deemed relevant constructs that influence the perception of barriers (Lent et al., 2000), reading disabilities and ADHD have yet to be acknowledged explicitly.

Proximal Barriers: Self-Disclosure

The Americans with Disabilities Act (ADA) was enacted to implement equal employment opportunities for people with learning disabilities and protect them from barriers that might adversely affect their educational and employment opportunities (Gerber & Price, 2003). There appears to be an assumption that adults with learning disabilities are equipped with an understanding of the protections against barriers that they are granted under ADA, but some studies raise doubts about this assumption (Greenbaum, Graham, & Scales, 1996; Kakela & Witte, 2000). Most of these studies suggest that, in an effort to avoid discrimination, adults with learning disabilities may shy away from disclosing their disability to their employer and, as a result, may not obtain needed accommodations. In general, these studies have focused on identifying individuals' reasons for not disclosing or outcomes resulting from nondisclosure.

Greenbaum et al. (1996) attempted to determine why adults with learning disabilities did not disclose their disability to their employers. Using qualitative analyses of phone interviews, the authors investigated the occupational outcomes of adults with learning disabilities ($N = 49$; 35 currently employed) who had attended university. However, Greenbaum et al. did not describe the characteristics of their sample adequately; so it is unclear how many of the participants had actually graduated from college or were finishing their degrees at other institutions.

Greenbaum et al.'s interviews consisted of 105 questions concerning employment history, overall college experience, and social life. Approximately 80% of the graduates declared that their learning disability affected their work. However, only 22% of them revealed that they had engaged in self-disclosure and received work accommodations. Greenbaum et al. discovered that the major contributing factors for nondisclosure were fears of negative perceptions and discrimination from employers and colleagues.

Similarly, Kakela and Witte (2000) used surveys to investigate the contributing factors to employment self-disclosure among college graduates with learning disabilities ($N = 22$). All of the graduates were currently employed and had received a formal diagnosis and supporting documentation; they all reported that they had provided documentation and received accommodations throughout their college careers. Kakela and Witte's results revealed that 71% of the participants, who had not self-disclosed indicated either that their disability was not pertinent or relevant or they were concerned about being "negatively perceived" by colleagues (p. 30). The authors suggested that reasons for such a high non-disclosure rate could have been that the participants had (a) learned how to compensate, (b) had a clear understanding of their strengths and

weaknesses, or (c) were uninformed about the ways in which their learning disability affected their work. A limitation of their study was the small sample size and the limited variety of perceived barriers.

Also, Madaus, Foley, McGuire, and Ruban (2002) explored the rate at which graduates from postsecondary institutions with learning disabilities engaged in employment self-disclosure. They surveyed college graduates (*N*=89) who had participated in a designated program for students with learning disabilities during their college tenure. At the time of their study, 92.1% of the participants reported full-time or part-time employment. The survey collected information regarding their career experiences, job satisfaction, and self-efficacy, but not their perceptions of barriers. Also, two qualitative items were used to assess the effectiveness of the learning disabilities program they had participated in.

Madaus et al. (2002) found that 90% of the college graduates acknowledged that their learning disability affected their work, but only 30.3% reported self-disclosing. Of the 66.3% of the participants who refused to self-disclose, 46.1% reported not self-disclosing because of fear of damaging work relationships and increasing their chances of losing their jobs. These findings concerning barriers to work self-disclosure are consistent with Madaus et al.'s (2002) previous findings.

Moreover, Gerber, Price, Mulligan, and Shessel (2004) used case studies to explore the issue of self-disclosure and related employment experiences of U.S. and Canadian adults with learning disabilities. To understand their overall work experiences, the authors used a sample of adults (*N*=49; Americans=25, Canadians=24), who had received a formal diagnosis of a learning disability and were currently or previously

employed. Participants (*n*=48) had graduated from high school, received job training or had attended some college (*n*=33), or had earned a masters, bachelors, or associates degree (*n*=9). The interview questions examined current knowledge of disability legislation and how that knowledge affected the pre-employment (e.g., job interviews), post-employment (e.g., obtaining employment), and the promotion process. The investigators found that the majority of participants did not engage in self-disclosure and as a result did not request accommodations. The researchers concluded that respondents' lack of knowledge concerning disability legislation as it relates to employment barriers might explain their lack of self-disclosure.

Madaus (2006b) investigated ways to improve the transition from post-secondary institutions to the workforce for adults with learning disabilities. College graduates with learning disabilities had the opportunity to answer an open-ended question on a survey that explored employment outcomes. All of the participants had received a formal diagnosis and provided documentation to their respective institutions of higher education. Of those who completed the survey (*N*=500), 170 provided qualitative responses regarding the transition process. Madaus found that graduates requested more formal programming to inform students about disability legislation and more opportunities for mentorship and networking with current and former students with learning disabilities.

Madaus's (2008) additional analyses of the same sample of college graduates with learning disabilities (Madaus, 2006a, 2006b) revealed that, of those who had self-disclosed (55%) to their employer, 20% described having negative experiences such as not being considered for promotions and decreased expectations from colleagues. Additionally, those who refused to self-disclose (45%) indicated either there was no need

to request accommodations or they feared a negative response from supervisors or coworkers. In particular, Madaus (2008) found that those who were more aware of their legal rights under ADA were more likely to self-disclose. Thus, an identified proximal barrier to employment for adults with reading disabilities and ADHD may be their lack of awareness of their legal rights under ADA.

Collectively, the research on self-disclosure of adults with learning disabilities has focused on proximal barriers (e.g., fear of discrimination) to employment for graduates from high school or college. More research is needed that examines proximal factors for adults who are less educationally privileged. Further, more proximal factors related to career decision-making specifically, such as knowledge of how disability legislation supposedly protects them from barriers, need to be the focus of research on adults with reading disabilities and ADHD, specifically for those participating in ABE programs.

Distal Barriers: Employment Outcomes

With respect to perceived distal barriers, some studies have examined the effects of career-related knowledge, exposure to learning opportunities, and having obtained or not obtained a college degree. Of these, the studies most relevant to the present study are those focused on samples without college educations.

Non-College Studies

Shessel and Reiff (1999) conducted a qualitative analysis to investigate the positive and negative work experiences of adults with learning disabilities, whose education ranged from completion of some secondary schooling to advanced degrees (*N* = 14). The researchers used results of neuropsychological assessments and interviews as their inclusion and exclusion criteria. Participants reported various workplace barriers,

such as not comprehending employer expectations and evaluations and difficulty managing interpersonal relationships with colleagues and supervisors.

Duquette and Fullarton (2009) used semi-structured interviews to investigate the work experiences of adults with learning disabilities (*N*=10). Participants had either graduated from high school (*n*=3), or received a GED or a diploma from an alternative high school (*n*=4) or they had not completed high school and had received limited job training (*n*=3). The common fears associated with employment experiences across educational levels were issues with co-workers, inability to uphold job expectations, and low self-efficacy in regards to job-related skills. Due to limited educational experiences reported by the sample, the results suggested that participants were restricted to entry-level positions.

Duquette and Fullarton (2009, p. 67) concluded that the participants "appeared to feel that they were trapped in a negative employment cycle and did not have the individual characteristics or a supportive environment to return to school and restart their lives in a new direction." Their results suggest that limited learning experiences resulted in low academic self-efficacy, self-determination, and low career outcome expectations in a manner consistent with SCCT theory.

Mathis and Roessler (2010) sought to identify the types of factors that are related to employment outcomes for adults with learning disabilities who participated in a vocational rehabilitation program (*N*=240). Half of the sample had graduated from high school or received a GED and about 2% of participants had completed post-secondary education. The authors specifically examined the ways in which distal variables (i.e., self-

esteem) and proximal variables (i.e., gender, locus of control, and career-related knowledge) affected employment outcomes for persons with learning disabilities.

Through an analysis of longitudinal data, Mathis and Roessler found that gender, as well as belief in chance, was related to income because of the gender pay gap, while career-related knowledge was related to job satisfaction. Based on their results, the authors encouraged the development of interventions with a focus on informing participants about the world of work and increasing self-awareness of their skills and interests.

College Samples

Madaus (2006a) explored employment outcomes (i.e., income and employment status) among college graduates with learning disabilities (*N*=500). The author, using an interview protocol that was previously used in Madaus et al. (2002),.observed that income and employment status for graduates with learning disabilities were comparable to the rates in the overall U.S. workforce. However, Madaus (2006a) asserted that the positive employment outcomes were due to the fact that the entire sample had earned college degrees. Therefore, he concluded that obtaining a postsecondary degree was greatly beneficial to employment outcomes for adults with learning disabilities, which seems problematic for adults in basic education programs.

More research with non-college educated samples of adults with reading disabilities and ADHD is clearly needed. Nevertheless, a fairly consistent theme across the studies was that self-efficacy or self-determination with respect to one's career development usually improved the quality of work adjustment of people with reading disabilities and ADHD.

Self-Determination

Decision-making, plan development, and task initiation are all skills that are linked to self-determination. *Self-determination* may be defined as "the development of personal characteristics, knowledge and skills needed to take responsibility for and control of one's actions" (Taymans, 2010, p. 19). However, lack of these very skills is potentially a primary challenge faced by individuals with learning disabilities (Field, 1996), who may need self-determination to overcome real or perceived barriers. Self-determination theory "suggests that individuals will gravitate toward domains, activities, and relationships in life wherein basic psychological needs can be potentially fulfilled-and they will tend either to avoid or engage only under duress domains and activities that threaten basic needs" (Ryan & La Guardia, 2000, p. 151). According to self-determination theory, autonomy (e.g., sense of choice), competence (e.g., ability to learn new skills), and relatedness (e.g., sense of secure relationships) are the basic psychological needs that are essential for well-being (Ryan & Deci, 2000). When these needs are fulfilled, one will possess a sense of authenticity, mastery, and connectedness in their work and with others.

Blustein (2006, 2008) uses self-determination theory in his psychology of working perspective to explicate the work experiences of people who do not have the privilege of simultaneously exploring their interests and satisfying their survival needs. In Blustein's (2006) perspective on work, self-determination pertains to the intrinsic and extrinsic motivational experiences of working. *Intrinsic motivation* is a self-fulfilling exploration process that is facilitated by the person's needs for autonomy, competence, and relatedness, whereas extrinsic motivation is the process of attempting to attain

external rewards (i.e., money) (Blustein, 2006; Ryan & Deci, 2000; Ryan & La Guardia, 2000). Ryan and Deci (2000) suggest that the act of fulfilling intrinsic needs can transform an extrinsically motivated experience into a more meaningful self-determined experience. Therefore, a close examination of the role of self-determination is warranted in order to understand and increase positive outcomes for individuals with reading disabilities and ADHD.

Trainor (2005) analyzed qualitative interviews of male junior and senior high school students with learning disabilities (*N*=17) in an effort to understand how the students' self-determination (e.g., self-assessment and goal setting) was involved in how they planned to make the transition from high school to post-high school work or education. The results revealed that opportunities for self-determination were limited in the school environment in that teachers did not involve the students in the planning or decision-making process about their post-high school options. Additionally, students did not perceive themselves as capable of self-advocating during their transition planning meetings. However, if parents were involved in the transition meetings, the opportunities for self-determination increased for the students in that they were more actively involved in the planning process.

Trainor (2005) suggested that in order to facilitate self-determination, students with learning disabilities need to be involved in the planning process to fully understand the implications regarding their educational and career goals. Also, he recommended that additional research is needed to examine the relationship between contextual factors (e.g., barriers in one's environment) and self-determination.

Anctil, Ishikawa, and Scott (2008) examined the way in which self-determination was demonstrated by college students with learning disabilities ($N = 104$). The researchers used a mixed-methods approach in which they administered surveys and conducted semi-structured interviews with a subset of respondents ($n = 19$). The researchers discovered that students expressed self-determination through problem-solving and self-advocacy skills. Similar to Trainor (2005), Anctil et al., (2008) found that family support facilitated self-determination of students with learning disabilities. More specifically, family support encouraged students to become active agents concerning their educational needs. For example, students knew how to request accommodations regarding their academic needs, if their families had been involved in their education. Overall, Trainor and Anctil et al.'s research provides support for examining self-determination as integral aspects of the career development of adults with reading disabilities and ADHD.

The previously cited research of Trainor (2005) and Anctil et al., (2008) suggests that self-determination skills (i.e., problem solving & self-advocacy) may be related to career exploration activities, such as participating in planning future educational and career goals. That is, self-determination may contribute to career self-efficacy. Moreover, self-determination has been proposed to be one of the characteristics of adults with learning disabilities that may help them overcome perceived barriers. Yet existing research has focused on participants with learning disabilities who were engaged in or had obtained a traditional education. Further investigation of the ways in which self-determination interacts with perceived barriers and career decision-making self-efficacy of adults without traditional educations and/or related credentials is needed.

Statement of the Problem

From 10% to 50% of adult students in ABE programs have learning disabilities, which may never have been formally diagnosed (Corley & Taymans, 2002). Unfortunately, there is limited research on the career development experiences of adults with reading disabilities and ADHD enrolled in ABE programs and, consequently, little information is available about how best to prepare them to transition from ABE programs to work. Thus, perhaps, it is needless to say, virtually no theoretical frameworks have been offered for investigating the career exploration process of educationally disadvantaged adults with reading disabilities and ADHD.

Yet there are some aspects of being a person with a reading disability and ADHD that do not allow the person to fit easily into preexisting models. These aspects include (a) whether the person has developed sufficient self-efficacy to make intrinsically motivated career decisions, (b) the extent to which the person's perception of potential barriers influences career decision-making self-efficacy, and (c) whether the person's levels of self-determination affects her or his reactions to barriers and development of self-efficacy.

Career Self-Efficacy

Social Cognitive Career Theory (SCCT) and Blustein's (2006) psychology of work provide some principles that might be useful in beginning to formulate a model of career exploration and development for adults with reading disabilities and ADHD. SCCT proposes that self-efficacy is defined by the belief one has the skills and abilities to achieve desired outcomes (Lent et al., 1994). This definition of self-efficacy is the conceptual framework for career decision-making self-efficacy (CDMSE).

CDMSE is the person's belief in his or her capabilities to perform tasks that are related to making career decisions. According to SCCT, without self-efficacy building career experiences, positive outcome expectations are limited. Therefore, undereducated adults with reading disabilities and ADHD may encounter contextual influences, such as limited opportunities to build self-efficacy, which may contribute to negative career outcome expectations as well as low levels of career decision-making self-efficacy. Moreover, the IDEA mandates that individuals should receive transition-planning skills. However, the limited available research shows that individuals with learning disabilities lack exposure to career planning skills, information pertaining to selecting goals, and knowledge about potential barriers that would allow them to anticipate the ways in which their learning disability might impact their careers (Hitchings et al., 2001; Ochs & Roessler, 2001).

Perception of Barriers

Some studies have revealed that college graduates with learning disabilities encountered difficulties with respect to perceived barriers (Gerber & Price, 2003; Gerber et al., 2004; Greenbaum et al., 1996; Kakela & Witte, 2000; Madaus et al., 2002; Madaus, 2006b; & Madaus, 2008) and self-determination (Anctil et al., 2008) or self-efficacy in their own career decision-making process (Hitchings et al., 2001; Luzzo et al., 1999; & Ochs & Roessler, 2004). Thus, it seems reasonable to extrapolate some of the experiences of formally educated samples with learning disabilities to adults in ABE programs for the purpose of beginning to develop career-related concepts applicable specifically to them.

The perception of barriers has been linked to overall educational and career outcomes. Thus, fear of discrimination and financial difficulties have been identified as common barriers to achieving educational and career goals (McWhirter, 1997). Unwillingness to self-disclose to employers about one's disability has been identified as a barrier to job satisfaction and general career-related outcomes for college students with learning disabilities. If college graduates encounter such barriers, then they may be even more detrimental for adults in ABE programs who are less educationally privileged.

Self-Determination

Self-determination may influence how the person perceives or reacts to barriers as well as the extent to which the person is motivated to engage in intrinsically rewarding (e.g., use of one's own talents or beliefs) or extrinsically rewarding (e.g. reliance on external rewards) career-related activities. The psychology of working perspective considers the role of intrinsic and extrinsic motivations (i.e., self-determination) in regards to career development. More specifically, this perspective strives to include individuals whose choice of work is contingent upon external rewards (e.g., money and survival) (Blustein, 2006).

There is a need to address self-determination with the goal of explicating how met and unmet basic psychological needs (e.g., autonomy, competence, and relatedness) influence the career-decision-making process for adults with reading disabilities and ADHD. In the proposed study, self-determination is defined as the person's level of satisfaction of his or her needs for autonomy (e.g., sense of choice), competence (e.g., ability to learn new skills), and relatedness (e.g., sense of secure relationships). Self-

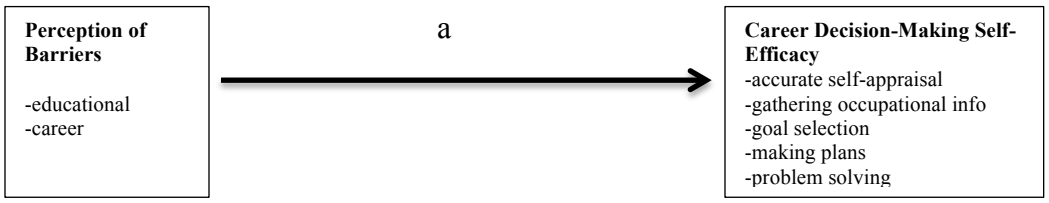
determination theory posits that individuals will either seek out or avoid tasks that affect their fulfillment of such basic psychological needs (Ryan & La Guardia, 2000).

However, the majority of the research that has examined self-determination has focused on high school or college student populations, rather than exploring educationally disadvantaged students (Anctil et al., 2008; Trainor, 2005). Therefore, theory inspired elaboration of the construct of self-determination will assist in understanding the ways in which ABE adults with readings disabilities and ADHD think about navigating the world of work.

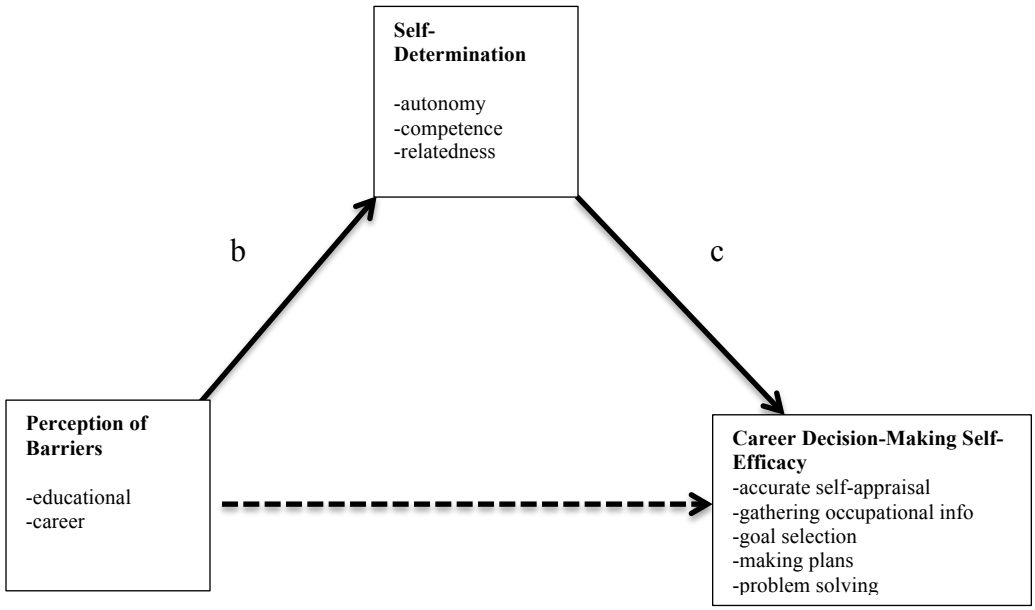
Proposed Model and Hypotheses

Therefore, the purpose of this study was to develop a model that explains the ways in which the perceptions of barriers and self-determination affected the career decision-making of undereducated adults with reading disabilities and ADHD. The hypothesized model was used to investigate the ways in which (a) perceived barriers were related to career decision-making self-efficacy, (b) perceived barriers were related to self-determination, and (c) self-determination was related to career decision making self-efficacy. Thus, it was anticipated that self-determination would explain or mediate the relationships between perceived barriers and career decision-making self-efficacy. Figure 1 illustrates the manner in which the components of the model were hypothesized to interact with each other.

Figure 1. Mediation Model



a) Direct Pathway



b) Mediated Pathway

Hypotheses

The following hypotheses were tested in the present study:

Hypothesis 1: Perceptions of educational and career barriers will significantly predict career-decision making self-efficacy (path a), which is defined as (a) self-appraisal, (b)

gathering occupational information (c) goal selection, (d) making plans, and (e) problem solving.

Support for this hypothesis is based upon the research literature regarding perceived barriers and career decision-making self-efficacy. Perceived educational and career barriers have been found to significantly influence career interests, goals, and choice for high school students (Constantine, Wallace, & Kindaichi, 2005; Paa & McWhirter, 2000). Additionally, research has linked higher levels of perceived barriers to lower levels of career decision-making self-efficacy, outcome expectations, vocational skills, and self-efficacy (McWhirter et al., 2000).

To operationalize perceptions of barriers, the distal factors in the hypothesis, I used the Perceptions of Barriers Scale which measures perceived educational and career barriers (Luzzo & McWhirter, 2001; McWhirter, 1998). The construct of career decision-making self-efficacy was operationalized using the Career Decision-Making Self-Efficacy Scale (Betz & Luzzo, 1996), which measures activities (i.e., planning, problem solving, self-appraisal, goal setting, and gathering resources) related to career decisions.

Hypothesis 2: Perception of barriers will significantly predict self-determination (path b). Specifically, the perception of educational and career barriers was expected to predict each of the three components of self-determination, (a) autonomy, (b) competence, and (c) relatedness.

This hypothesis was drawn from the theoretical and research literature regarding high school and college experiences of students with learning disabilities. Research has indicated that lack of access to career exploration opportunities (e.g., transition planning

or resources), fear of discrimination, and lack of understanding of legislative rights (e.g., ADA) are impediments to developing an optimal level of self-determination as defined by confidence in one's skills and competent decision-making (Banks, 2014; Blustein, 2006; Trainor, 2005).

Perceived barriers were measured as specified for Hypothesis 1. Self-determination was operationalized using the autonomy, competence, and relatedness subscales from the Basic Psychological Need Scale (Deci, Ryan, Gagne, Leone, Usunov, & Kornazheva, 2001; Gagne, 2003).

Hypothesis 3: Self-determination will significantly predict career decision-making self-efficacy (path c). Each of the three components of self-determination (i.e., autonomy, competence, and relatedness) was expected to predict each of the five components of career decision making self-efficacy: (a) accurate self-appraisal, (b) gathering occupational information (c) goal selection, (d) making plans, and (e) problem solving. Career decision making self-efficacy and self-determination were measured as specified for Hypothesis 1 and Hypothesis 2.

Support for this hypothesis is based on research that suggests that self-determined behaviors for students with learning disabilities are exhibited through various skills, which include distal variables (i.e., choice making, decision-making, problem-solving, goal setting) and proximal variables (i.e., internal locus of control and positive attributions of efficacy and outcome expectancy) (Wehmeyer & Palmer, 2010; Wehmeyer, Sands, Doll, & Palmer, 1997).

Hypothesis 4: Self-determination (i.e., autonomy, competence, and relatedness) is hypothesized to mediate the relationship between perception of barriers and career

decision-making self-efficacy.

For the proposed study, self-determination is viewed as the mediator. In other words, if ABE students with learning disabilities have a strong sense of self-determination as defined in the present study, then it was presumed that they would perceive fewer barriers and, consequently, anticipated barriers would have a weaker effect on their beliefs about their career self-efficacy (Lent et al., 2000). Thus, it was hypothesized that the relationship between perception of barriers and career decision-making self-efficacy would be significantly reduced or would not exist when self-determination was used in combination with perceived barriers to predict career decision-making self-efficacy (Baron & Kenny, 1986; Frazier, Tix, & Barrons, 2004).

Chapter 3

Methods

Participants

The sample for the current study was obtained through online surveys and mailed questionnaires from Adult Basic Education (ABE) programs nationwide. Participants (*N* =99) were included in this study if they (a) consented to participate, (b) were between the ages of 18 and 55 years old, (c) born in the United States, (d) not enrolled in an English language learners' program, and (e) were currently participating or had participated in an ABE program. Table 1 provides a summary of the respondents' self-reported demographic characteristics. Most of the participants were women (59.56%) and the sample's mean age was 33.99 years (*SD* = 11.9). Although there were 103 respondents, four of them did not meet the age inclusion criterion of being within the age range of18 to 55 years old and, therefore, were removed from the dataset. Thus, the sample consisted of 99 participants. Approximately 59.6% of the remaining respondents had dropped out of high school, 22.2% indicated that they had received an individualized education plan during their secondary schooling, and 20.2% reported that they were at some point involved in special education.

Inclusion criteria also included scores on two self-report screening measures used to assess for Attention-Deficit/Hyperactivity Disorder (ADHD) and reading difficulties. Approximately 39.4% of the participants' scores indicated the presence of both ADHD and reading difficulties. This group will be referred to as "the combined group". Another 28.3% had only reading difficulties, 16.2% of the participants' scores indicated

ADHD only, and 16.2 % indicated neither ADHD nor reading difficulties. This latter group will be referred to as the "undiagnosed group".

Table 1
Participants' Self-reported Demographic Characteristics (*N*=99)

Characteristic	Frequency	%
Gender		
Women	59	59.59
Men	40	40.40
Race		
Black/African American	53	53.53
Asian/Asian American Pacific Islander	1	1.01
Native American/American Indian	0	0
White/Not Hispanic	27	27.27
Latino(a)/Hispanic	4	4.04
Other	14	14.14
Participant Primary Language		
English	97	97.97
Spanish	2	2.02
Maternal Primary Language		
English	87	87.87
Spanish	4	4.04
Portuguese	4	4.04
Other	4	4.04
Paternal Primary Language		
English	85	85.85
Spanish	4	4.04
Portuguese	4	4.04
Other	6	6.06
Highest Education		
No Formal Education	1	1.01
Elementary (1-5)	1	1.01
Middle School	6	6.06
Some High School	38	38.38
High School (9-12)	31	31.31
Other	22	22.22
Dropout		
Yes	59	59.59
No	40	40.40
504 Plan or Individualized Education Plan		
Yes	22	22.22
No	77	77.77
Special Education		
Yes	20	20.20

No	79	79.79
Employed		
Yes	57	57.57
No	42	42.42

Table 1 (Continued)

Category	Frequency	%
Income Level		
Low Income	61	61.61
Middle Income	35	35.35
Upper Middle Income	3	3.03
Upper Income	0	0

Note. For Language, Maternal = mother's or female guardian's language spoken, Paternal = father's or male guardian's language spoken

Measures

The study included the following self-report measures: (a) a demographic questionnaire, (b) the Adult ADHD Self-Report Scale (Kessler, Adler, Ames, Demler, Faraone et al., 2005), (c) the Adult Reading History Questionnaire-Revised (Lefy & Pennington, 2000), (d) a modified Perception of Barriers Scale (Luzzo & McWhirter, 2001; McWhirter, 1998), (e) the Basic Psychological Need Scale (Deci, Ryan, Gagne, Leone, Usunov, & Kornazheva, 2001; Gagne, 2003), and (f) the Career Decision Self-Efficacy Scale- Short Form (Betz & Luzzo, 1996).

Screening Measures

Demographic Questionnaire. Participants were asked to respond to a demographic questionnaire that included items inquiring about a variety of demographic characteristics (e.g., their age, gender, race/ethnicity, levels of education). This information was used primarily as descriptive information and to determine whether participants matched the inclusion criteria. Also, reading disability and ADHD status was assessed by questions that asked whether the person had received an Individual

Education Plan (IEP) or 504-plan during her or his secondary schooling. This information was also used to determine the known reading disability and ADHD status of the participants (Appendix A).

Adult ADHD Self-Report Scale (ASRS). In an effort to account for adults who might not have received a formal diagnosis previously, all participants were given the Adult ADHD Self-Report Scale (ASRS). The ASRS was used to assess for the presence of a neurodevelopmental disorder, specifically, Attention Deficit Hyperactivity Disorder (ADHD).

Participants responded to this 6-item scale using 5-point frequency scales, where 0 = never to 4= very often (e.g., "How often do you have problems remembering appointments or obligations?"). Item responses were summed. Scores ranging from 14 to 24 indicated high levels of ADHD symptoms. For this study, approximately 56.56% had scores that indicated high levels of ADHD symptoms.

Kessler et al. (2007) used the scale to screen for ADHD in a subsample of adults (N = 668) who were at least 18 years of age. In their study, approximately 64.9% indicated higher scores ranging from 14-24 on the ASRS. The authors reported test-retest reliability coefficients ranging from .59 to .77 for scores on the scale over a three-phase period that spanned the course of 6 months. Their reported Cronbach alpha coefficients ranged from .63 to .72. For the present study, the obtained Cronbach alpha coefficient was .71 (Appendix B).

Adult Reading History Questionnaire-Revised. To account for the adults who had never received a formal diagnosis of dyslexia, all participants were given the Adult Reading History Questionnaire-Revised (ARHQ-R) (Finnuci et al., 1984; Lefy &

Pennington, 2000; Parrila et al., 2003). The ARHQ-R was used to assess for the presence of a learning disability, specifically, dyslexia.

Participants responded to this 10-item measure using five-point scales, where 0 = "less reading difficulty" to 4 = "more reading difficulty" (e.g., "How much difficulty did you have learning to read in elementary school?"). To calculate a total score, item responses were summed and divided by 40, which was the maximum possible score; higher scores indicate more reading difficulty. Previous research has indicated that the minimum cutoff score that indicates reading difficulties is .30 (Deacon et al., 2012; Lefy & Pennington, 2000; McGonnell, Parrila, & Deacon, 2007; Parrila, 2007). For the present study, approximately 67.67% of participants had scores equal to or higher than the .30 cutoff (Appendix C).

Deacon et al. (2012) used the ARHQ-R as a self-reporting strategy for acquiring a sample of high functioning dyslexic adults. They used a sample of 84 college students (57 women and 27 men), who were at least 18 years of age (mean age=20.55, SD=12.37). Deacon et al. reported a test-retest reliability coefficient of .93 for scores on the scale for the diagnosed group and the comparison group. For the present study, the obtained Cronbach alpha coefficient was .43, which suggests that the 10 items did not assess a single construct very well. Therefore, it is best to think about the ARHQ-R as a weighted frequency count rather than a scale as such.

As evidence of validity of scores on the ARHQ-R, Deacon et al. (2012) compared the self-reported group who completed the questionnaire to those who had a confirmed diagnosis of dyslexia and then to a third group without a diagnosis or reading difficulties. They reported that the self-reporting group and the confirmed diagnosis group scores did

not differ significantly and performed similarly on the measure. Furthermore, the group without a diagnosis or reading difficulties out-performed the self-reported and confirmed diagnosis groups. As a result, Deacon et al. suggested that the ARHQ-R is a useful method for obtaining a sample of adults with dyslexia (Appendix C).

Measures for Testing the Proposed Model

Modified Perception of Barriers Scale (POB). The POB is a 33-item measure that consists of two subscales that assess respondents' (a) perceived career-related and (b) educational barriers (Corrigan, 2008; Luzzo & McWhirter, 2001; McWhirter, 1998**)**. Corrigan modified the scale by eliminating items about ethnicity and replacing them with items about reading difficulties. Thus, the Career Related Barriers subscale consists of 12 items that assess the participant's expectation of barriers related to gender and reading difficulties related to work (e.g., "In my future job, I will probably experience discrimination because of my reading difficulties"). The educational barriers subscale is a 21-item measure designed to assess the various barriers to pursuing educational goals (e.g., "My reading difficulties is currently a barrier to my educational aspirations"). For both subscales, participants responded to each item using five-point Likert-type scales where 1= strongly disagree to 5=strongly agree. Item responses for each scale were summed; higher scores indicate the anticipation of experiencing more educational and career barriers.

Corrigan (2008) used the modified POB scale with a sample of 82 college students with disabilities (mean age =29.5, SD=10; 45 women and 37 men). Of the 82 participants, 36.6% self-identified as having a documented learning disability. Corrigan reported Cronbach alpha reliability coefficients for each subscale's scores as follows:

Career-Related Barriers, α = .89 and Educational Barriers, α = .91. For the current study, the reliability coefficients for each subscale's scores were as follows: Career-Related Barriers, α = .84 and Educational Barriers, α = .89 which demonstrates acceptable to good reliability estimates (Appendix D).

Basic Psychological Need Scale (BPNS). In the proposed study, the 21-item BPNS was used to assess self-determination. The scale consists of three subscales (Autonomy, Competence, and Relatedness) that assess three domains of self-determination **(**Deci et al., 2001; Gagne, 2003). The Autonomy subscale contains seven items that depict feelings of authenticity or freedom of choice (e.g., "I feel like I am free to decide for myself how to live my life."). The Competence subscale consists of six items that reflect feelings of mastery (e.g., "Often, I do not feel very competent."). The Relatedness subscale contains eight items that depict feelings of connection with others (e.g., "I really like the people I interact with"). The measure uses seven-point true-false scales where 1= not at all true to 7= very true. Once selected items from each subscale are reversed scored, the average of each subscale is computed. The average scores indicate the levels of need satisfaction for each of the three respective need categories (i.e., autonomy, competence, and relatedness).

Gagne (2003) used a sample of 121 undergraduate students (77 women, 42 men, and 2 unreported) and reported a Cronbach alpha coefficient of .89 for their scores on the total scale, and their coefficients for each subscale's scores were as follows: Autonomy, α = .69; Competence, α = .71; and Relatedness, α = .86. After the reversed scored items were removed from each subscale based on their inter-item correlations the following reliability coefficients for each subscale were: Autonomy, α = .59, Competence, α =. 78,

and Relatedness, α =.76 which demonstrates acceptable reliability estimates (Appendix E).

Career Decision Self-Efficacy Scale-Short Form (CDSES-SF). This scale was used to measure behaviors and tasks related to making career decisions. The short form consists of 25 questions divided into five subscales: (a) Accurate Self-Appraisal, items assessing self-assessment of one's own abilities (e.g., "How much confidence do you have that you could accurately assess your abilities?"); (b) Gathering Occupational Information, items that reflect the ability to identify and gather resourceful information (e.g., "How much confidence do you have that you can talk with a person already employed in the field you are interested in?"); (c) Goal Selection, items that depict the ability to establish personal characteristics and goal congruence (e.g., "How much confidence do you have that you could choose a career that will fit your preferred lifestyle?"); (d) Making Plans for the Future, which assesses implementation abilities (e.g., "How much confidence do you have that you could prepare a good resume?"); and (e) Problem Solving, items that reflect the application of coping strategies (e.g., "How much confidence do you have that you could change majors if you did not like your first choice?" Betz, Klein, & Taylor, 1996; Betz & Luzzo, 1996) (Appendix F).

The CDSES-SF uses 5-point response formats where 1= no confidence at all to 5= complete confidence. Responses are summed to obtain total and subscale scores. Higher scores on the total and subscales indicate greater levels of career decision self-efficacy. Hitchings et al. (2010) used the CDSES-SF with a sample of 64 college students with disabilities (mean age =22.09 years, SD=7.35; 35 women and 29 men). Of the 64 participants, 36 self-identified as having a documented learning disability. The alpha

coefficients for the subscale scores ranged from α= .73 to α= .83. Scores on the CDSES-SF have been found to be related to career self-efficacy, career exploration, and career indecision (Betz & Luzzo, 1996; Blustein, 1989; Chaney, Hammond, Betz, & Multon, 2007; Hitchings et al., 2010). For the current study, the reliability coefficients for each subscale were as follows: Goal Selection, α = .82; Occupational Information, α = .83; Planning, α = .87; Problem Solving, α = .87; and Self-appraisal, α = .84 which demonstrates acceptable to good reliability estimates.

Procedures

The Boston College Institutional Review Board approved the study prior to survey administration. Participants were recruited from Adult Basic Education (ABE) programs nationwide. The researcher contacted site coordinators from various ABE programs to obtain permission to collect data from potential participants. The two offered methods used for data collection were (a) mailed questionnaires or (b) online surveys; the site coordinator determined the preferred method.

For mailed questionnaires, if site coordinators identified mailed questionnaires as the best administration method, the Principal Investigator (PI) mailed or delivered the number of specified packets of materials to site coordinators to be distributed to potential participants. The site coordinator distributed complete packets of materials to potential participants who mailed their packets back individually. Each packet included a postage paid envelope, a cover letter explaining the procedures of the study, an informed consent form, a form for entering the raffle, and the previously described measures. Completed questionnaire packets were either mailed to or picked up by the researcher in sealed envelopes. Return envelopes with pre-paid postage were provided for each mailed packet

of questionnaires. Participants had the option of completing the questionnaire in a classroom setting with other participants or individually at their leisure. Participants returned their completed questionnaires to their site coordinators, and then site coordinators mailed completed packets to the PI.

For online administration, the PI sent a link to the survey to the site coordinators, who administered (but did not teach) the classes. Survey participants identified by the site coordinators, were sent a brief email including, an explanation of the study, the criteria to participate, and the survey link to potential participants in the ABE classes inviting them to participate. This was the preferred data collection method selected by most site coordinators. The online survey was hosted on the Qualtrics website. Participants had the opportunity to complete the survey on their own personal computers. Once participants had completed the study, they were directed to an external link to enter a raffle for one of five $25 Target gift cards.

To ensure confidentiality, all informed consents and raffle forms were kept separate from self-report measures. Each participant received a code and no personal identifying information was collected. Only the primary researcher and her research supervisor had access to the data.

Chapter 4

Results

Data Preparation

The following variables were used to test the hypothesized model: (a) career barriers as measured by the Modified Perception of Barriers Scale, (b) self-determination as measured by the Basic Psychological Need Scale, and (c) career decision-making self-efficacy as measured by the Career Decision Self-Efficacy Scale- Short Form. The SPSS Missing Value Analysis, which calculates the percentage and patterns of missing values for each variable and the dataset as a whole was used to identify missing data.

The variables with missing data ranged from 2.5% to 10% for men; from 4.7% to 11.1% for women; 0% to 7.1% for the undiagnosed group; 0% to 12.5% for the ADHD group; 3.3% to 13.3% for the reading group; and 2.0% to 10% for the combined ADHD and reading group. A series of one-way ANOVAs were conducted to examine if missing data differed between disability groups. There were no significant differences found between disability groups. Little's Missing Completely at Random (MCAR) Test was conducted and expectation maximization was used to estimate and impute missing data. The expectation maximization procedure uses all available data and multiple duplications of estimated missing data to replace missing values. This procedure is assumed to be more powerful than other procedures for replacing missing data because it aims to keep the variables homogenous (Tabachnik & Fidell, 2001). The final sample was 99 (n = 16, Undiagnosed; n = 16, ADHD*;* n = 28, Reading*;* and n = 39, Combined).

Test of Multivariate Assumptions

To evaluate the assumption of normality, each variable's histogram was inspected visually, and all variable distributions were inspected statistically (Table 2) to assess their levels of skewness and kurtosis. Typically, acceptable scores that fall considerably outside of an absolute value of the standardized skewness coefficients (i.e., skewness divided by the standard error of skewness) of 3.29 indicate significant positive or negative skewness at the .001 probability level. All of the variables for each group (Undiagnosed, ADHD, Reading, and Combined) were within the acceptable range of -3 and +3 with respect to skewness. Additionally, using the Shapiro-Wilk's test of normality, the undiagnosed group, ADHD group, reading group, and the combined group met the assumption of normality for all 10 variables. To identify multivariate outliers, the use of Mahalanobis distance with 10 dependent variables indicated no significant outliers. The obtained chi square for all groups was $\chi^2 = 29.58$, $p > .001$.

Table 2

Means, Standard Deviations, and Cronbach Alpha Coefficients for Perception of Barriers, Basic Psychological Needs, and Career Decision-Making Self-Efficacy (*N*=99)

Variable	Mean	SD	α	Skewness	Range
Perception of Barriers					
Career-Related	28.06	9.10	.84	.37	12 - 56
Educational	49.03	14.09	.89	.37	22 - 87
Self-Determination					
Autonomy	21.06	3.97	.59	-.58	9 - 28
Competence	14.89	3.86	.78	-.69	3 - 21
Relatedness	27.48	4.62	.76	-.42	15 - 35
Career Decision-Making Self-Efficacy					
Goal Selection	3.30	.84	.82	-.34	5 - 25
Occupational Info	3.32	.88	.83	-.18	6 - 25
Planning	3.31	.96	.87	-.16	5 - 25
Problem Solving	3.25	.89	.87	-.28	5 - 25
Self-Appraisal	3.52	.85	.84	-.44	5 - 25

Multicollinearity was examined by checking tolerance values, variance inflation factor (VIF), and Pearson correlations for highly correlated variables. Tolerance was greater than .10 and the VIF was less than 10, indicating that multicollinearity was not an issue. The ADHD group and reading group met the assumption for lack of multicollinearity. For the undiagnosed group, the occupational information and planning variables were significantly correlated, r =.93, n = 16, p < .001, and for the combined group, the occupational information and goal selection variables were significantly correlated (r = .91, n = 39 p < .001). Table 4 provides a summary of descriptive statistics for the predictor and criterion variables for the undiagnosed, ADHD, reading, and combined groups.

Preliminary Analyses

The proposed model was based on the premise that a sufficient number of participants with only a diagnosed or assessed reading disability would be available to permit a test of a mediation model based only on those participants with a reading disability. Yet this was not the case as the respondents were distributed across the four previously defined groups. Therefore, three multivariate analyses of variance (MANOVAs) were performed to assess whether adults with reading disabilities could be combined with any of the remaining groups (i.e., ADHD, combined group, or undiagnosed group). The dependent variables in the MANOVAs were respectively (a) perceived barriers (i.e., career-related and educational barriers), (b) self-determination (i.e., levels of autonomy, competence, and relatedness); and (c) career decision-making self-efficacy (i.e., goal selection, occupational information, planning, problem solving, and self-appraisal).

Table 3a

Pearson Correlations Among Predictor and Criterion Variables (Undiagnosed Group, $N = 16$)

	1	2	3	4	5	6	7	8	9	10
1. CAR	--									
2. EDU	.56**	--								
3. AUT	-.23	-.17	--							
4. COM	-.04	-.21	.50*	--						
5. REL	-.33	-.39	.64*	.72**	--					
6. GOA	-.19	-.28	.58*	.02	.16	--				
7. OCC	-.20	-.40	.31	-.04	.10	.83**	--			
8. PLA	-.29	-.35	.45	.10	.21	.89**	.92**	--		
9. PRO	-.48	-.46	.39	.09	.21	.80**	.62**	.77**	--	
10. SEL	-.40	-.52*	.56*	.04	.27	.87**	.84**	.85**	.73**	--

Note. CAR= Career-related barriers, EDU= Educational barriers, AUT= Autonomy, COM= Competence, REL= Relatedness, GOA=Goal selection, OCC= Occupational Information, PLA= Planning, PRO= Problem solving, SEL= Self-appraisal. * $p < .05$, ** $p < .01$.

Table 3b

Pearson Correlations Among Predictor and Criterion Variables (ADHD Group, $N = 16$)

	1	2	3	4	5	6	7	8	9	10
1. CAR	--									
2. EDU	.76**	--								
3. AUT	-.46	-.58*	--							
4. COM	-.43	-.50*	.67**	--						
5. REL	-.37	-.50*	.78**	.60*	--					
6. GOA	-.51*	-.57*	.44	.33	.51*	--				
7. OCC	-.58*	-.69**	.45	.53*	.50*	.88**	--			
8. PLA	-.45	-.54*	.34	.49	.36	.83**	.88**	--		
9. PRO	-.30	-.53*	.44	.56*	.44	.70**	.76**	.87**	--	
10. SEL	-.57	-.65**	.52*	.60*	.58*	.90**	.96**	.88**	.78**	--

Note. CAR= Career-related barriers, EDU= Educational barriers, AUT= Autonomy, COM= Competence, REL= Relatedness, GOA=Goal selection, OCC= Occupational Information, PLA= Planning, PRO= Problem solving, SEL= Self-appraisal. * $p < .05$, ** $p < .01$.

Table 3c

Pearson Correlations Among Predictor and Criterion Variables (Reading Group, $N = 28$)

	1	2	3	4	5	6	7	8	9	10
1. CAR	--									
2. EDU	.59**	--								
3. AUT	-.24	-.30	--							
4. COM	-.34	-.61**	.40*	--						
5. REL	-.22	-.36	.77**	.46*	--					
6. GOA	-.35	-.55**	.44*	.67**	.31	--				
7. OCC	-.27	-.63**	.50**	.61**	.34	.76**	--			
8. PLA	-.28	-.63**	.44*	.62**	.34	.85**	.88**	--		
9. PRO	-.31	-.69**	.49**	.73**	.41*	.90**	.89**	.89**	--	
10. SEL	-.19	-.59**	.35	.50**	.34	.78**	.73**	.83**	.79**	--

Note. CAR= Career-related barriers, EDU= Educational barriers, AUT= Autonomy, COM= Competence, REL= Relatedness, GOA=Goal selection, OCC= Occupational Information, PLA= Planning, PRO= Problem solving, SEL= Self-appraisal. * $p < .05$, ** $p < .01$.

Table 3d

Pearson Correlations Among Predictor and Criterion Variables (Combined Group, $N = 39$)

	1	2	3	4	5	6	7	8	9	10
1. CAR	--									
2. EDU	.51**	--								
3. AUT	-.28	-.56**	--							
4. COM	-.07	-.41**	.66**	--						
5. REL	-.32*	-.65**	.67**	.56**	--					
6. GOA	-.18	-.40**	.54**	.55**	.56**	--				
7. OCC	-.25	-.48**	.64**	.59**	.60**	.90**	--			
8. PLA	-.44**	-.58**	.65**	.57**	.64**	.82**	.85**	--		
9. PRO	-.25	-.45**	.62**	.64**	.59**	.89**	.90**	.90**	--	
10. SEL	-.25	-.44**	.56**	.56**	.59**	.81**	.91**	.84**	.89**	--

Note. CAR= Career-related barriers, EDU= Educational barriers, AUT= Autonomy, COM= Competence, REL= Relatedness, GOA=Goal selection, OCC= Occupational Information, PLA= Planning, PRO= Problem solving, SEL= Self-appraisal. * $p < .05$, ** $p < .01$.

Table 4

Summary of Descriptive Statistics for Predictor and Criterion Variables

	Undiagnosed			ADHD			Reading			Combined		
Variable	Mean	SD	Min-Max	Mean	SD	Min-Max	Mean	SD	Min-Max	Mean	SD	Min-Max
CAR	23.25	8.42	12-44	24.31	9.42	12-47	27.25	8.09	12-46	32.15	8.42	14-56
EDU	43.56	10.86	27-65	43.56	11.74	22-63	49.39	13.35	22-71	53.25	15.53	29-87
AUT	21.25	3.87	15-28	21.62	4.09	9-26	21.85	3.14	14-28	20.17	4.43	12-28
COM	14.06	4.28	3-20	14.62	4.39	9-21	15.67	3.03	10-21	14.79	4.04	5-21
REL	25.93	5.79	15-34	28.62	4.55	18-35	28.17	4.22	18-35	27.15	4.37	18-35
GOA	3.57	.58	2.80-4.40	3.63	.85	1.80-5.00	3.42	.76	1.60-5.00	2.98	.90	1.00-4.60
OCC	3.62	.70	2.40-4.80	3.60	.81	2.40-5.00	3.49	.79	1.60-5.00	2.97	.94	1.20-5.00
PLA	3.65	.72	2.60-5.00	3.56	.94	2.00-5.00	3.45	.91	1.40-5.00	2.98	1.03	1.00-5.00
PRO	3.68	.57	2.80-4.40	3.48	.89	2.00-5.00	3.32	.82	1.40-5.00	2.92	.96	1.00-5.00
SEL	3.83	.67	2.80-4.80	3.77	.78	2.00-5.00	3.71	.71	1.80-5.00	3.16	.92	1.00-5.00

Note. CAR= Career-related barriers, EDU= Educational barriers, AUT= Autonomy, COM= Competence, REL= Relatedness, GOA=Goal selection, OCC= Occupational Information, PLA= Planning, PRO= Problem solving, SEL= Self-appraisal.

Perceived Barriers. The main effect for type of group was significant when career-related and educational barriers were the dependent variables, Wilks' Lambda = .009, $F(6, 188) = 2.93$, $p < .05$. Thus, perceptions of barriers differed significantly by reading disability and ADHD group type and, therefore, post hoc tests were examined. The univariate analyses of variance (ANOVAs) were significant for both perceived barriers variables: Career-Related, $F(3, 95) = 5.84$ $p \leq .001$; and Educational Barriers, $F(3, 95) = 2.94$ $p = .03$. The Scheffé post hoc tests revealed that, for Career-Related barriers, the undiagnosed group differed significantly from the combined group ($p = .008$) and the ADHD group differed significantly from the combined groups ($p = .026$). The undiagnosed and ADHD groups perceived significantly fewer career-related barriers than the combined group. There were no significant between-group mean differences for Educational barriers. Also, the reading group did not differ significantly from any of the other groups for career-related barriers or educational barriers.

Self-Determination. The main effect for reading disability and ADHD type was not significant when the three self-determination measures were the dependent variables, Wilks' Lambda = .293, $F(9, 226) = 1.20$, $.293 > .05$. Therefore, post hoc tests were not examined and the non-significant between-group differences suggested that the learning disability groups could be combined for subsequent analyses with respect to these variables.

Career Self-Efficacy. The main effect for group type was not significant when the five career decision-making self-efficacy variables were the dependent variables, Wilks' Lambda = .269, $F(15, 251) = 1.20$, $.269 > .05$. Therefore, post hoc tests were not examined and the non-significant between-group differences suggested that the reading

disability and ADHD groups could be combined for subsequent analyses with respect to these variables.

The preliminary analyses revealed that the three types of reading disability and ADHD groups did not differ significantly for self-determination and career self-efficacy. Therefore, the ADHD, reading, and combined groups were merged into one group. The final sample size used to test the proposed model was *N*= 83. Additionally, the goal selection and occupational subscales of career decision-making self-efficacy were combined into one subscale (Goal Information) because they were so highly correlated. Table 5 provides a summary of descriptive statistics for the predictor and criterion variables.

Table 5

Means, Standard Deviations, Minimum and Maximum Scores for Perception of Barriers, Self-Determination, and Career Decision-Making Self-Efficacy (*N*=83)

Variable	Mean	SD	Min	Max
Perception of Barriers				
Career-Related	28.98	8.98	12.00	56.00
Educational	50.08	14.45	22.00	87.00
Self-Determination				
Autonomy	5.25	1.00	2.25	7.00
Competence	5.02	1.26	1.33	7.00
Relatedness	5.47	.88	2.75	7.00
Career Decision-Making Self-Efficacy				
Goal Information	3.26	.86	1.20	5.00
Planning	3.25	.99	1.00	5.00
Problem Solving	3.16	.92	1.00	5.00
Self-Appraisal	3.46	.87	1.00	5.00

Tests of Hypotheses

To test the proposed model that self-determination mediates the relationship between perception of barriers and career decision-making self-efficacy, a mediation model was tested. Frazier, Tix, and Barrons (2004) suggest that the following conditions must be met to establish mediation: First, there must be a significant relationship between the independent variable (perception of barriers) and dependent variable (career decision-making self-efficacy) in order to establish that there is an effect to be mediated. Second, the independent variable (perception of barriers) must be significantly related to the proposed mediator (self-determination). Third, there ought to be a significant relationship between the mediator (self-determination) and the dependent variable (career decision-making self-efficacy). Lastly, the relationship between the independent variable (perception of barriers) and the dependent variable (career decision-making self-efficacy) should be significantly reduced when the mediator (self-determination) is added to the model. The hypotheses state these relationships.

Hypothesis 1: Perception of educational and career barriers will significantly predict career-decision making self-efficacy.

To test this hypothesis, I used a multivariate multiple regression analysis (MMRA) with perceived barriers as the predictor variables and scores on career decision-making self-efficacy as the criteria (Table 6). Perceived barriers were measured by two scores, the Educational and Career-related subscales, from the modified Perception of Barriers scale (Luzzo & McWhirter, 2001; McWhirter, 1998). Higher scores on the Educational and Career subscales indicate higher levels of perceived barriers. Scores on the following subscales of the Career Decision Making Self-Efficacy Scale-Short Form

(CDMSE; Betz& Luzzo, 1996) were used to measure career decision-making self-efficacy: (a) Accurate Self-appraisal, (b) Goal information, (c) Planning, and (d) Problem solving.

Results of the MMRA revealed that the overall proportion of the variance in CDMSE scores accounted for by the perception of barriers subscales was significant as indicated by Wilks lambda, $\Lambda = .59$, $F(8, 154) = 5.81$, $p < .001$. R^2=.41, which indicated that 41% of the variance in the overall model was explained. Educational barriers significantly accounted for 24% ($\Lambda = .760$, $F(4, 77) = 6.06$, $p < .001$) of the variance in Accurate Self-appraisal ($\beta = -.030$), Goal Information ($\beta = -.031$), Planning ($\beta = -.038$), and Problem solving ($\beta = -.036$). The variance accounted for by Career-related barriers was not significant ($\Lambda = .95$, $F(4, 77) = 1.01$, $p = .40$) for Accurate Self-appraisal ($\beta = -.007$), Goal Information ($\beta = -.008$), Planning ($\beta = -.013$), and Problem solving ($\beta = -.001$). Given that the overall model was significant, Step 2 of the mediation analysis was conducted.

Table 6

Multivariate Multiple Regression Analysis with Perception of Barriers predicting Career Decision Making Self-Efficacy (N=83)

CV	PV	F	B	t	p
Goal Information	EDU	19.71	-.031	-4.44	.000**
	CAR	.515	-.008	-.718	.475
Planning	EDU	24.05	-.038	-4.90	.000**
	CAR	1.11	-.013	-1.05	.293
Problem Solving	EDU	22.52	-.036	-4.74	.000**
	CAR	.004	-.001	-.063	.950
Self-appraisal	EDU	17.36	-.030	-4.16	.000**
	CAR	.410	-.007	-.640	.524

Note. CV = Criterion Variable, PV = Predictor Variable, CAR= Career barriers, and EDU= Educational barriers. * $p < .05$ and ** $p < .001$.

Hypothesis 2: Perception of barriers will be significantly related to self-determination. Specifically, the perception of educational and career barriers is expected to be related to lower levels self-determination as assessed by (a) Autonomy, (b) Competence, and (c) Relatedness.

To test this hypothesis, I used a MMRA with perceived barriers as the predictor variables and self-determination, the proposed mediators, as the outcome variables (Table 7). Perceived barriers were measured by scores on the Educational and Career barriers subscales as previously described. Autonomy, Competence, and Relatedness subscales from the Basic Psychological Need Scale measured self-determination (Deci et al., 2001; Gagne, 2003). Higher scores indicate higher levels of these self-determination variables.

The omnibus test of the overall model indicated that the proportion of variance in the self-determination subscales accounted for by perceptions of barriers was significant, Wilks $\Lambda = .662$, $F(6, 156) = 5.93$, $p < .001$, $R^2=.34$, which indicated that 33.8% of variance in the self-determination variable set was explained by perceptions of barriers. Educational barriers significantly accounted for 24% ($\Lambda = .759$, $F(3, 78) = 8.25$, $p < .001$) of the variance in Autonomy ($\beta = -.03$), Competence ($\beta = -.04$), and Relatedness ($\beta = -.03$). Educational barriers were significantly inversely related to Autonomy (beta = -.03, t(1,15.68) = -3.96, $p <.0001$), Competence (beta = -.04, t(1,16.57) = -4.07, $p <.0001$), and Relatedness (beta= -.03, t(1,15.13) = -3.89, $p <.0001$), Thus, the more education barriers the participants perceived, the lower were their levels of authenticity, mastery, and supportive relationships.

The variance in the self-determination set accounted for by Career-related barriers was not significant. However, given that the overall model including both predictors was significant, Step 3 of the mediation analysis was conducted.

Table 7

Multivariate Multiple Regression Analysis with Perception of Barriers Predicting Self-Determination ($N = 83$)

CV	PV	F	B	t	p
Autonomy	EDU	15.68	-.033	-3.96	.0001**
	CAR	.197	-.006	-.444	.658
Competence	EDU	16.57	-.044	-4.07	.0001**
	CAR	.440	.012	.663	.509
Relatedness	EDU	15.13	-.029	-3.89	.0001**
	CAR	.005	.001	.073	.942

Note. CV = Criterion Variable, PV = Predictor Variable, CAR= Career barriers, and EDU= Educational barriers. * $p < .05$ and ** $p < .001$.

Hypothesis 3: Self-determination will be significantly related to career decision-making self-efficacy. Therefore, Autonomy, Competence, and Relatedness is expected to be related to lower levels of (a) Accurate Self-appraisal, (b) Goal Information, (c) Planning, and (d) Problem-solving.

To test this hypothesis, I also used a MMRA. In this case, the self-determination variable set (i.e., Autonomy, Competence, and Relatedness subscales) was used to predict career decision-making self-efficacy as the criterion variables (Table 8). Scores on the following subscales were used to measure career decision-making self-efficacy: (a) Accurate Self-appraisal, (b) Goal Information, (c) Planning, and (d) Problem solving.

Results indicated that the overall proportion of variance in the criterion variables accounted for by the predictors was significant using the Wilk's lambda criterion: $\Lambda =$

.493, $F(12, 201) = 5.13$, $p < .001$, R^2=.51, which indicated that 50.7% of the career decision-making self-efficacy variance was explained by the self-determination variables. Examination of the proportions of variance in the career self-efficacy variable set accounted for by the separate self-determination predictor models revealed that Competence significantly accounted for 19.3% ($\Lambda = .807$, $F(4, 76) = 4.54$, $p < .001$) of the variance in Accurate self-appraisal (beta = .218, t(1,7.92) = 2.81, $p < .001$) Goal Information (beta = .214, t(1,8.19) = 2.86, $p < .001$), Planning (beta = .258, t(1,8.74) = 2.95, $p < .001$), and Problem solving (beta = .317, t(1, 17.31) = 4.16, $p < .001$). Also, Autonomy accounted for 7.1% ($\Lambda = .929$, $F(4, 76) = 1.45$, $p = .22$) of the variance in Goal Information (beta = .248, t(1, 5.17) = 2.27, $p < .05$).

However, the variance accounted for by the self-determination variable, Relatedness ($\Lambda = .953$, $F(4, 76) = .93$, $p = .45$), was not significant. Given that the overall model including all four components of self-determination was significant, the final step of the mediation analysis was conducted.

Table 8

Multivariate Multiple Regression Analysis with Self-Determination predicting Career Decision Making Self-Efficacy ($N = 83$)

CV	PV	F	B	t	p
Goal Information	AUT	5.17	.248	2.27	.026*
	COM	8.19	.214	2.86	.005**
	REL	1.92	.154	1.38	.169
Planning	AUT	4.24	.262	2.06	.043
	COM	8.74	.258	2.95	.004**
	REL	1.86	.177	1.36	.177
Problem Solving	AUT	3.13	.197	1.77	.080
	COM	17.31	.317	4.16	.000**
	REL	1.88	.155	1.37	.174

Self-appraisal	AUT	2.27	.170	1.50	.136
	COM	7.92	.218	2.81	.006**
	REL	3.75	.223	1.93	.056

Note. CV = Criterion Variable, PV = Predictor Variable, AUT= Autonomy, COM= Competence and REL= Relatedness. * $p < .05$ and ** $p < .001$.

Hypothesis 4: When Perception of Barriers and the Self-Determination variables are used to predict career decision-making self-efficacy, the relations between Perceptions of Barriers and the career decision making self- efficacy variables will no longer be significant if Self-Determination is a complete mediator or they will be significantly reduced if Self-Determination is a partial mediator. As previously described, the self-determination variables are Autonomy, Competence, and Relatedness and the outcome variables are (a) Accurate Self-appraisal, (b) Goal Information (c) Making plans, and (d) Problem solving.

To test this hypothesis, the self-determination variables (i.e., Autonomy, Competence, and Relatedness) and the perceived proximal variables (i.e., Education, and Career barriers) were entered as predictors in the MMRA with the career self-efficacy variables (i.e., Goal information, Planning, Problem solving, and Accurate Self-Appraisal as criterion variables). As summarized in Table 9, the results indicated that the overall proportion of variance in the self-efficacy criterion set accounted for by the self-determination and perceived barriers predictors was significant using the Wilk's lambda criterion: $\Lambda = .392$, $F(20, 246) = 4.01$, $p < .001$, $R^2=.60$, which indicated that 60.8% of the career decision making self-efficacy variance was explained.

Examination of the proportions of variance in the criterion variables accounted for the by the separate models revealed that Competence significantly accounted for 16.3% ($\Lambda = .837$, $F(4, 74) = 3.61$, $p < .001$) of the variance in Accurate self-appraisal,

Goal Information, Planning, and Problem solving. While Educational Barriers significantly accounted for 8% ($\Lambda = .920$, $F(4, 74) = 1.61$, $p = .179$) of the variance in Goal Information, Planning, and Problem solving

Educational Barriers was negatively related to Goal Information (beta = -.014, t(1, 4.05) = -2.01, $p < .05$), Planning (beta = -.021, t(1, 6.67) = -2.58, $p < .05$), and Problem Solving (beta = -.016, t(1, 4.69) = -2.16, $p < .05$). Competence was positively related to Goal Information (beta = .179, t(1, 5.97) = 2.44, $p < .05$)., Planning (beta = .207, t(1, 6.37) = 2.52, $p < .05$)., Problem Solving (beta = .279, t(1, 13.66) = 3.69, $p < .001$)., and Self-Appraisal (beta = .185, t(1, 5.84) = 2.41, $p < .05$).

However, the variance accounted for by Autonomy ($\Lambda = .959$, $F(4, 74) = .794$, $p = .533$), Relatedness ($\Lambda = .969$, $F(4, 74) = .594$, $p = .668$), and Career barriers ($\Lambda = .955$, $F(4, 74) = .868$, $p = .487$) was not significant.

I examined the regression coefficients of the educational barriers variable as a predictor of the five career self-efficacy variables to determine whether the coefficients decreased relative to their size when educational barriers variables were used without self-determination variables to predict the career self-efficacy variable set. The results somewhat supported the meditational hypothesis in that the relationship between Educational Barriers and Self-Appraisal was no longer significant when Competence was entered into the model as a predictor. Results of the Sobel (Sobel, 1982) test suggest that the association between educational barriers and self-appraisal was mediated by Competence ($z = -2.13$, $p \leq .0001$), but the relationship between education and the other career self-efficacy variables (i.e., goal information, planning, and problem solving) were not mediated by either of the other self-determination variables.

Table 9

Multivariate Multiple Regression Analysis with Perception of Barriers and Self-Determination Predicting Career Decision Making Self-Efficacy ($N = 83$)

CV	PV	F	B	t	p
Goal	EDU	4.05	-.014	-2.01	.047*
Information	CAR	.824	-.009	-.908	.367
	AUT	2.74	.177	1.65	.102
	COM	5.97	.179	2.44	.017*
	REL	.703	.091	.839	.404
Planning	EDU	6.67	-.021	-2.58	.012*
	CAR	1.67	-.015	-1.29	.200
	AUT	1.70	.156	1.30	.196
	COM	6.37	.207	2.52	.014*
	REL	.481	.084	.694	.490
Problem	EDU	4.69	-.016	-2.16	.033*
Solving	CAR	.100	-.003	-.317	.752
	AUT	1.49	.135	1.22	.226
	COM	13.66	.279	3.69	.0001**
	REL	.687	.093	.829	.410
Self-	EDU	3.23	-.013	-1.79	.076
appraisal	CAR	.742	-.009	-.861	.392
	AUT	.841	.102	.917	.362
	COM	5.84	.185	2.41	.018*
	REL	2.07	.163	1.44	.154

Note. CV = Criterion Variable, PV = Predictor Variable, CAR= Career barriers, EDU= Educational barriers, AUT= Autonomy, COM= Competence, REL= Relatedness, * $p < .05$ and ** $p < .001$.

In sum, there was only weak support for the proposed mediation model. Perceived educational barriers and competence as a self-determination variable supported the hypothesized model when self-appraisal was the outcome measure. Otherwise, each was significantly related to one or more of the career self-efficacy variables.

Chapter 5

Discussion

The psychology of working perspective implies that self-determination is a way in which marginalized individuals can find meaning in work (Blustein, 2006; Ryan & Deci, 2000). In the present study, "marginalized individuals" were adults with reading disabilities and ADHD enrolled in adult basic education (ABE) programs. The career development of undereducated adults with reading disabilities and ADHD has been overlooked. Previous studies have primarily focused on the experiences of adults with learning disabilities, who were already enrolled in college and were receiving sufficient support and accommodations (Duquerre & Fullarton, 2009). Yet for adults with reading disabilities and ADHD who participate in ABE programs, it is unknown whether career decisions are intrinsically motivated, or if perceived barriers limit employment options, or how positive career outcomes are fostered.

The purpose of present study was to develop a model to discover whether self-determination (i.e., intrinsic motivation) influenced the relationships between perceived barriers and career decision-making self-efficacy for this population. Responses from a sample of adults with reading disabilities and ADHD who participated in ABE programs were analyzed to explore the following hypotheses: (a) whether perceived educational and career barriers were related to their career decision-making self-efficacy, (b) whether perceived barriers were related to self-determination, and (c) the extent to which self-determination was related to their career decision making self-efficacy. Collectively, these three hypotheses potentially formed the basis of a mediation model for adults with reading disabilities and ADHD. In the following sections, findings related to the tests of

the proposed model, methodological limitations, and implications for research and practice are discussed. Prior to examining the model, it is important to describe the sample because few other studies have investigated career development constructs with a sample of students in ABE programs with different types of reading disabilities and ADHD. Additionally, in contrast to the present study, other studies have tended to focus on comparing the differences between adults with and without learning disabilities (Hitchings et al., 2010; Luzzo et al., 1999; Ochs & Roessler, 2004; Witte et al., 1998).

The ABE Sample

The present study included self-reported screening measures that assessed for ADHD and reading disability. Nevertheless, it is reasonable to infer the presence of dyslexia from adults' reports that they have reading disabilities or screening measures that suggest that they might have dyslexia (Lefy & Pennington, 2000). The final sample consisted of 83 adults who either indicated the presence of ADHD only, dyslexia only, or combined ADHD and dyslexia. Overall, 81.3% of the ADHD group had dropped out of high school, compared to 57.1% of the reading-only group and 64.1% of the combined group, which seems to indicate that people with ADHD are more likely to drop out of high school than people with other primary diagnoses such as dyslexia. The dyslexia group (Mean = 37.6, SD=) was significantly older than the ADHD only (Mean=30.6, SD=) and combined groups (Mean = 32.8, SD=). To be diagnosed with ADHD symptoms need to be present before the age of 12 (American Psychiatric Association, 2013). Perhaps students with ADHD in ABE programs were unaware of their ADHD diagnosis and disengaged from traditional education systems at an earlier age than students with other types of disabilities. More women (69.2%) than men were assessed as

having both ADHD and dyslexia. Overall, women scored higher on perceived educational and career barriers and career decision making self-efficacy than men. Therefore, women perceived more barriers than their male counterparts, but still felt more confident in their ability to make career decisions.

Are Perceived Barriers Related to Career Decision-Making Self-Efficacy?

Social Cognitive Career Theory (SCCT) indicates that perceived barriers shape the ways in which people engage in the career development process (Lent et al., 1994). In the current study, perceived barriers were operationalized as the participants' expectations that they would possibly experience career and educational career-related barriers when encountering career decisions. Hypothesis 1 proposed that perceived barriers would be related to career decision-making self-efficacy, defined as goal information (i.e., gathering resources to establish goals), making plans (i.e., ability to implement goals), problem solving (i.e., capacity to modify goals and plans), and accurate self-appraisal (i.e., self-awareness of one's own skill level).

The results summarized in Table 6 suggest that the hypothesis was partially supported. Perceived educational barriers were negatively related to goal information, planning, problem solving, and self-appraisal. Thus, when participants anticipated experiencing educational barriers, they exhibited lower levels of career decision making self-efficacy in all of the assessed domains. However, career-related barriers were not significantly related to goal information, planning, problem solving, or self-appraisal.

Perhaps the obtained education and employment status of the sample explains the partially supported findings. For example, 65.1% of the sample self-reported dropping out of high school and 43.4% were currently unemployed. The high dropout rate for this

sample suggests that their opportunity to be involved in the decision-making process was already constrained. For example, high school is a time in which students participate in career exploration (Ochs & Roessler, 2001). Perhaps the lack of opportunity to participate in career development interventions contributed to their belief that they were unable to manage making career decisions (Luzzo et al., 1999). Also, the results suggest that for some undereducated adults with reading disabilities and ADHD, the anticipation of career-related barriers may not play a role in their career decision-making self-efficacy. Perhaps they do not anticipate career barriers or such barriers do not affect their decision-making because of their limited employment involvement.

It has been postulated that perceived barriers are affected by proximal and distal contextual factors. In the present study, distal contextual factors were exposure to learning opportunities such as ABE programs and factors were the presence of a learning disability (i.e., ADHD or reading disability). The hypothesis was developed based on research suggesting that distal (e.g., participating in ABE program) and proximal (e.g., access to career development resources) factors affect one's involvement in the career exploration process (Lent et al., 2000; Lent et al., 1994; McWhirter et al., 2000). For example, Lease (2006) found that for high school students' without learning disabilities self-efficacy concerning their ability to establish and implement career goals decreased as perceived educational barriers increased. Thus, the hypothesized relationship between educational barriers and career decision making self-efficacy is partially consistent with previous research in that the findings from the present study revealed that as more barriers are perceived, confidence in making career decisions decreases for adults with reading disabilities and ADHD. Moreover, the findings suggest that adults with reading

disabilities and ADHD may be similar to high school students in the ways that they process career information.

Are Perceived Barriers Related to Self-Determination?

Previous research has indicated that populations with learning disabilities have limited opportunities to foster self-determination because they often are not included in activities (e.g., planning or goal setting) that facilitate self-determination (Banks, 2014; Trainor, 2005). In the current study, as previously noted, perceived barriers were conceptualized as the person's anticipation of encountering career and education- related barriers. Hypothesis 2 proposed that perceived barriers defined would be related to low levels of self-determination, defined in terms of autonomy (e.g., feelings of authenticity), competence (e.g., sense of expertise), and relatedness (e.g., feelings of connection).

The results summarized in Table 7 reveal that the hypothesis was partially supported. Perceived educational barriers were negatively related to autonomy, competence, and relatedness. When respondents reported encountering educational barriers, they described themselves as exhibiting less self-determination (i.e., a reduced sense of autonomy, competence, and relatedness). Therefore as adults with reading disabilities and ADHD experienced educational barriers, such as feeling unprepared and lacking support, their belief in their ability to attain a sense of authenticity, mastery, and connectedness (i.e., ability to overcome educational barriers) decreased.

Hypothesis 2 was based upon the psychology of working perspective that considers the contextual factors that affect the meaning of work for marginalized populations (Blustein, 2006; Ryan & Deci, 2000; Ryan & La Guardia, 2000). Moreover, it was inferred that learning disabilities would influence the value of work for adults

participating in ABE programs. The obtained relationship between educational barriers and self-determination is consistent with previous research that focused on the ways in which self-concept, self-determination, and academic achievement were related for adolescents with learning disabilities (Zheng, Erickson, Kingston, & Noonan, 2014). Zheng et al. found that, for adolescents with learning disabilities, self-determination was related to academic and adult outcomes (e.g., employment). More specifically, as self-determination or ability to overcome obstacles increased for adolescents with learning disabilities, so did the likelihood of experiencing positive academic and adult outcomes.

However, in the present study, career-related barriers were not significantly related to autonomy, competence, or relatedness. This finding is inconsistent with previous research. For example, Baard, Deci, and Ryan (2004) found that the basic needs for autonomy, competence, and relatedness were interconnected with work performance and well-being for adults without learning disabilities. The results of the present study suggest that for some undereducated adults with reading disabilities and ADHD, the anticipation of career-related barriers may not be a major factor in regards to self-determination. For a sample in which 56.6% were employed, experiencing work-related discrimination due to their learning disability was possibly unlikely given that they did have some work. Nevertheless, it is not clear whether the nature of their work reflected choice or necessity (Blustein, 2006).

Is Self-Determination Related to Career Decision-Making Self-Efficacy?

Other research indicates that a sense of self-determination is facilitated through being involved in the career exploration process (Wehmeyer & Palmer, 2010; Wehmeyer et al., 1997). For example, Lindstrom and Benz (2002) examined the career development

process for six high school graduates with learning disabilities. They revealed that having a sense of support or connection influenced the career-decision making process. For example, having a sense of support affected whether participants felt certain about their career goals and experienced a sense of work security (Lindstorm & Benz, 2002).

In the current study, self-determination was operationalized as participants' feelings of authenticity, sense of expertise, and feelings of connection.

Hypothesis 3 proposed that self-determination would be positively related to career decision making self-efficacy. That is, participants who had a sense of authenticity, expertise, and connection would be able to gather resources to establish goals, implement goals, modify goals and plans, and they would have self-awareness of their own skill level. The results summarized in Table 8 suggest that the hypothesis was partially supported in that competence or sense of expertise was positively related to setting, implementing, and adjusting goals, as well as having knowledge of one's work-related skill set. Additionally, autonomy was positively related to goal information, meaning the more knowledge one felt they possessed, the more confident they felt in creating and applying their goals.

Hypothesis 3 was based upon research suggesting that a sense of autonomy, competence, and relatedness are displayed through various career decision-making skills, such as gathering resources, planning, problem solving, and self-awareness (Wehmeyer & Palmer, 2010; Wehmeyer et al., 1997). For example, Wehmeyer and Palmer (2003) investigated the relationship between self-determination and adult outcomes (i.e., work and ability to live independently) for 94 high school graduates with learning disabilities (n=60) or mental retardation (n=34). In their study, self-determination was

conceptualized as (a) autonomy (e.g., sense of independence), (b) self-regulation (e.g., goal setting and problem solving, (c) psychological empowerment (e.g., sense of control), and (d) self-realization (e.g., self-awareness). Those who were identified as having more self-determination upon leaving high school were more likely to be employed or to have engaged in vocational experiences such as job training.

Thus, the relationship between self-determination and career decision making self-efficacy obtained in the present study is consistent with previous research. Self-determination theory posits that competence is exhibited when the person is able to engage in a new task (e.g. career planning or job training) with confidence (Blustein & Flum, 1999). Therefore, when participants reported a sense of mastery when it came to setting goals and assessing their skills, they had greater confidence in their capabilities to make good career decisions for themselves.

Relatedness or sense of support from others was not significantly related to goal information, planning, problem solving, or self-appraisal or any of the career self-efficacy variables. The results suggest that having a sense of connection or relatedness to significant others was not a determining factor in career decision making self-efficacy for the current sample of undereducated adults with reading disabilities and ADHD. Previous research suggests that affirming relationships allows one to feel self-assured in exploring their career interests (Blustein & Flum, 1999). One explanation for this finding is that the mean age for this sample was 33.99 years old, and most participants were likely to already have established supportive relationships.

Does Self-Determination Explain the Relationship Between Perceived Barriers and Career Decision Making Self-Efficacy?

According to the psychology of working perspective self-determination is a basic psychological need for positive work outcomes (Blustein 2006). Self-determination was chosen as a mediator for this present study to explicate the strengths of adults with reading disabilities and ADHD. Moreover, the goal was to understand the ways in which independence, proficiency, and supportive relationships served as protective factors against perceived barriers for career decision making.

There was partial support for self-determination as a mediator of the relationship between perceived barriers and career decision making self-efficacy. More specifically, competence (i.e., sense of expertise) partially mediated the relationship between perceived educational barriers and goal information, planning, problem solving and self-appraisal. Therefore, adults with reading disabilities and ADHD who perceived fewer educational barriers regarding their educational aspirations were more likely to have a greater sense of competence, which in turn cultivated more career decision-making self-efficacy.

In other words, when fewer educational barriers (e.g., financial concerns, lacking intelligence) are perceived by adults with reading disabilities and ADHD, their confidence increases for engaging in the career exploration process. Previous research has identified financial concerns as a common educational barrier for those without disabilities (McWhirter, 1997). Therefore, in order for adults with reading disabilities and ADHD to feel confident in their career decisions, they must feel like they have access to sufficient resources to overcome perceived barriers to their goal attainment.

Overall, having a sense of confidence is very important for the reading disability and ADHD populations given that they are more likely to internalize passed failures

(Panagos & DuBois, 1999). Further, research has indicated that confidence is a significant factor for pursuing careers or engaging in the career exploration process, particularly for those with learning disabilities (Panagos & DuBois, 1999). Therefore, it is imperative that ABE programs foster competence in order for career goals to be developed and implemented for those with reading disabilities and ADHD.

The findings from the present study are consistent with the results of prior research involving students without disabilities. For example, researchers examined the relationship between career decision making self-efficacy, perceived barriers, and self-construal on well-being for Mexican American college students (Pina-Watson, Jimenez, Ojeda, 2014). The researchers found that perceiving fewer educational barriers led to feeling more self-assured in their skills to make career decisions (Pina-Watson, Jimenez, Ojeda, 2014).

Also, the lack of significant relationships between perceived career barriers, autonomy, relatedness, and career decision making self-efficacy may be explained by previous findings. Hitchings et al. (2010) revealed that students with learning disabilities have difficulty acknowledging career barriers associated with their learning disability. Perhaps this reluctance means that perceived career barriers are not as salient as perceived educational barriers because students think that their disability will recede once they are in the workforce (Cummings et al., 2000). Nevertheless, relationships among perceived career barriers, autonomy, relatedness, and career decision making self-efficacy were not found in the present study and reasons why none was found warrants additional exploration.

Methodological Limitations

Potential methodological limitations should be considered when interpreting findings from the current study, including generalizing the findings to other samples of adults with learning disabilities who participate in ABE programs. These challenges may have occurred in the (a) sampling, (b) measurement, and (c) research design aspects of the present study.

Sampling

In exploring whether the results of the present study are generalizable to other ABE adults, factors to consider are (a) sample size and diversity, (b) sampling procedures, and (c) participants' reactivity to terms used in the study.

Sample size. The number of participants in current study was relatively small (*N*= 83) and the sample consisted of adults with different types of reading disabilities and ADHD (i.e., ADHD-only, dyslexia-only, or combined ADHD and dyslexia). In the United States dyslexia is the most common learning disability (i.e., 15%-20%) and about 4.4% of adults have ADHD (Biederman, 2005; Cortillea & Horowitz, 2014). Additionally, the comorbidity rate of ADHD and dyslexia is approximately 33% (Buttner & Hasselhorn, 2011). For the present study, the sample was categorized as having dyslexia (34%), ADHD-only (19%), and combined disabilities (47%). Thus, adults with ADHD and both disabilities were over-represented in the sample used in the present study. Perhaps the study reveals more about ABE students with ADHD than it does about students with dyslexia. Also, given the small number of students in each group, the findings may not be generalizable to adults with specific types of learning disabilities (e.g., only reading disabilities or only combined disabilities). Thus, future researchers

should consider examining each type of disability independently to increase generalizability.

Also, the researcher initially recruited participants from 80 ABE programs in the Northeast. Participants were asked to respond to online or paper surveys. However, due to limited participants, the data collection procedures were expanded to ABE programs nationwide. Collecting data from a wider variety of geographical locations may have improved generalizability. Yet doing so made it impossible to collect data in person. Consequently, only participants who were willing and/or able to complete the survey online were included. It is possible that students with the types of reading disabilities and ADHD investigated in the present study have difficulty responding to or attending to lengthy online surveys. Therefore, generalizability with regard to who participated in the study was limited in this regard. Perhaps future researchers should seek to use other recruitment modalities, such as on-site administration and one-on-one interviews to improve the data collection process.

Another problem concerns participants' reactivity to the informed consent. Site coordinators communicated that some potential participants refused to take part in the study due to the word "investigator" being used in the informed consent. Because of the current political climate and immigration policies, participants were concerned that the current study would alert the government to their presence in the ABE programs. Participants were not necessarily concerned about their own immigration status, but were concerned about individuals who were personally or socially connected to them, such as partners and extended family. Moreover, if non-immigrant students shared similar fears, concerns about the consequences of participating in the study might have contributed to

the relatively small sample size. Future researchers need to consider the social justice implications regarding how the terminology in informed consent forms affect potential participants.

Measurement Concerns

A general observation about the measures used in the study is that they were all self-report and depended on the participants' willingness to divulge possibly sensitive information about themselves. For example, many adults do not want to admit that they have learning disabilities (Cummings et al., 2000). So, it is not clear to what extent a social desirability response set may have influenced participants' responses. Particularly, with respect to the "undiagnosed readers," who were not used in the research, it is possible that they were misdiagnosed because of their reluctance to reveal their reading difficulties. Future researchers should seek to gather qualitative data about participants' educational history in addition to the screening measures. Potential participants may feel more comfortable disclosing sensitive information in an interview than on a questionnaire.

Each of the screening measures appeared to be sufficient diagnostic measures for this study. The ADHD-only group scored higher than the undiagnosed and reading only groups on the Adult ADHD Self Report Scale (Kessler et al., 2005). The reading group scored significantly higher than the undiagnosed group and ADHD group on the Adult Reading History Questionnaire (Lefy & Pennington, 2000). Therefore, each screening measure adequately assessed for reading difficulties and ADHD for this study.

Additionally, the validity and reliability of participants' scores on virtually all of the career measures may have been compromised by changes made to some of them.

First, in the Modified Perception of Barriers Scale, which measured the perception of educational and career barriers (Luzzo & McWhirter, 2001; McWhirter, 1998), I replaced items about ethnicity (e.g., "In my future job, I will probably experience discrimination because of my ethnicity") with items about "reading difficulties" (e.g., "In my future job, I will probably experience discrimination because of my reading difficulty"). The term "reading difficulty" was substituted in those items in which the original terminology was judged to be problematic because of the possibility that participants were not aware of having a "learning disability". Nevertheless, participants may have endorsed lower response options because they still felt that those particular items did not apply to them. .

Consequently, it is not clear that the perception of barriers construct was actually measured. Despite the fact that the perception of barriers scale has been successfully used with college students with documented disabilities, it has not been used with undereducated adults with undiagnosed disabilities (Corrigan, 2008). Thus, researchers should replicate this study with adults with reading disabilities and ADHD who represent broader statuses of diagnosis and educational experiences.

For the Autonomy, Competence, and Relatedness subscales of the Basic Psychological Needs Scale (Deci et al., 2001), which assessed participants' self-determination (i.e., the mediator in the proposed model), the reliability coefficient for the original item responses was low. The reversed scored items were found to be problematic in that once they were removed, the reliability for the item responses increased. Thus, the reversed scored items were not used in the present study. Each of the reversed score items were negatively nuanced (e.g., "In my life I do not get much of a chance to show how capable I am") in a way that may have been particularly challenging

for adults with reading disabilities and ADHD to interpret. Although I did not do so in the present study, perhaps negative items could be reworded to make them more easily understood for non-college educated samples.

The original Career Decision Making Self-Efficacy scale (Betz & Luzzo, 1996), which was the source of the outcome measures used in the current study, consisted of five subscales (i.e., Accurate Self-Appraisal, Occupational Information, Goal Selection, Planning, and Problem Solving). However, in this sample, the correlation between scores on the Goal Selection subscale (i.e., establishing career goals) and the Occupational Information subscale (i.e., gathering career resources) was very high (r = .91, p<.001). Conceptually, such a high correlation suggests that both subscales were redundant in measuring tasks involved in the career decision making process. Statistically, a correlation of this size would be considered collinear and would potentially contribute to unreliable analyses. Therefore, the two subscales were combined to form the "Goal Information" subscale used in the present study. Additional research is warranted that implements the combined subscale of Goal Information for populations with reading disabilities and ADHD. At best, it can be supposed that this revised subscale measures the behaviors and tasks associated with the establishment and implementation of career goals.

Research Design

Considering that this study recruited undereducated participants with potential reading difficulties and ADHD, recruitment was a primary concern. The participants were recruited through mailed questionnaires and online surveys. For the mailed questionnaires, site coordinators were responsible for distributing the study to potential

participants. However, site coordinators received no training regarding who to sample and/or how to respond to questions. Their lack of research training may have led to a biased sample.

Additionally, the structure of the survey was a concern. For example, the screening measures were ordered first and therefore may have informed participants' responses on the following measures. Also, the length of the survey may have influenced respondents' completion of the survey. For example, participants were asked to reply to 95 items excluding demographic variables. Given that most of the survey respondents may have had diagnosed or undiagnosed reading disabilities and ADHD, completing the survey may have been too overwhelming, which in turn may have increased the online survey attrition rate.

Implications for Research and Practice

In spite of the variety of possible limitations, the findings of the current study may provide some important research and practice implications. Considering that there has been limited research that focuses on the career development experiences of adults with reading disabilities and ADHD in ABE programs, the current study examined a proposed model that was intended to understand the ways in which perceived barriers and self-determination influences the career exploration process for adults with reading disabilities and ADHD. When studying adults with reading disabilities and ADHD researchers often have focused on high school and college samples, therefore excluding those without traditional education (Duquerre & Fullarton, 2009; Ochs & Roessler, 2001). Yet ignoring the various educational experiences of adults with reading disabilities

and ADHD in non-traditional educational settings, means that educators and service providers have very little data on which to base interventions involving them.

The results of the present study suggest that perceived educational barriers (e.g., not being smart enough) either alone or in combination with one's sense of competence (e.g., ability to learn new skills) may influence how these adults perceive their career options (e.g., confidence to engage in career-related tasks and behaviors). In this study, when adults with reading disabilities and ADHD perceived fewer educational barriers, they reported a greater sense of competence or mastery, which increased their confidence for career-decision making. Educators and clinicians should seek to incorporate activities focused on building self-determination into their work with adults with reading disabilities and ADHD. Such activities might involve strengthening skills and positive beliefs in (a) problem solving, (b) goal setting, and (c) self-awareness. More specifically, adults with reading disabilities and ADHD should be involved in interventions that anticipate their post ABE career planning, which might include applying for employment or deciding to pursue post-secondary schooling.

Another contribution of the current study was its unique focus on using screening measures to identify participants with possibly undiagnosed reading disabilities and ADHD. The current prevalence rates of 10%-50% adults with undiagnosed learning disabilities within ABE programs is concerning (Corley & Taymans, 2002). The screening measures used in the current study may have been problematic for reasons discussed previously, although they seemed to work well for other researchers studying populations with reading disabilities and ADHD (Deacon et al., 2012; Kessler et al.,

2005). Therefore, more research is needed to determine which screening measures are most appropriate for undereducated adult populations.

Finally, as demonstrated in the current study educational barriers stood out as important factors for career decision making self-efficacy. That is, as more educational barriers were perceived, the participants' self-efficacy in career decisions increased. Additional research is warranted that further investigates the barriers within educational systems, particularly from the perspective of undereducated adults with reading disabilities and ADHD. Moreover, future researchers need to acknowledge the varying access to educational opportunities that are afforded to adults with reading disabilities and ADHD and consider such factors in their research designs. Educators and practitioners should consider addressing the kinds of skills and feelings suggested by the current research.

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Appendix A: Demographic Questionnaire

Date of Birth: _____

Age: _____

Gender:
❒ Female
❒ Male
❒ Transgender
❒ Other

What is your Race/Ethnicity? Please check all that apply
❒ Black/African American
❒ Asian/Asian American/Pacific Islander
❒ Native American/American Indian
❒ White/Not Hispanic
❒ Latino(a)/Hispanic
❒ Other. Please specify: _____

What languages do you speak? _____

What languages does your mother/guardian speak? _____

What languages does your father/guardian speak? _____

How long have you lived in the US? _____

Were you ever enrolled in an English as second language class?
❒ Yes
❒ No

What is your highest completed level of education?
❒ No formal education
❒ Elementary (1-5)
❒ Middle School
❒ Some High School
❒ High School (9-12)
❒ Other. Please specify:_____

Did you dropout or leave high school before completing?
❒ Yes
❒ No

Please identify/name the last school you attended: _____

Did you receive a 504 Plan or Individualized Education Plan (IEP) when you attended school?
❒ Yes
❒ No

Were you in special education?
❒ Yes
❒ No

Are you employed?
❒ Yes
❒ No

Position/Type of employment: _____

Which of the following best describes your income level?
❒ Low income
❒ Middle income
❒ Upper middle income
❒ Upper class

Appendix B: Adult ADHD Self-Report Scale

Please answer the questions below, rating yourself on each of the criteria shown using the scale on the right side of the page.

0	1	2	3	4
Never	Rarely	Sometimes	Often	Very Often

1. How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done?	0	1	2	3	4
2. How often do you have difficulty getting things in order when you have to do a task that requires organization?	0	1	2	3	4
3. How often do you have problems remembering appointments or obligations?	0	1	2	3	4
4. When you have a task that requires a lot of thought, how often do you avoid or delay getting started?	0	1	2	3	4
5. How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?	0	1	2	3	4
6. How often do you feel overly active and compelled to do things, like you were driven by a motor?	0	1	2	3	4

Appendix C: Adult Reading History Questionnaire-Revised

Please circle the number of the response that most nearly describes your attitude or experience for each of the following questions or statements.

		None				A Great Deal
1.	How much difficulty did you have learning to read in elementary school?	0	1	2	3	4
2.	Did you ever reverse the order of letters or numbers when you were a child?	0	1	2	3	4
3.	Did you have difficulty learning letter and/or color names when you were a child?	0	1	2	3	4
4.	How much difficulty did you have learning to spell in elementary school?	0	1	2	3	4
		Above average				**Below average**
5.	How would you compare your reading skill to that of others in your elementary classes?	0	1	2	3	4

6.	How would you compare your reading speed in elementary school with that of your classmates?	0 **More than 10**	1 **6-10**	2 **2-5**	3 **1-2**	4 **None**
7.	When you were in elementary school, how many books did you read for pleasure each year?	0	1	2	3	4
8.	How many comic books did you read for pleasure each year?	0 **Very positive**	1	2	3	4 **Very negative**
9.	Which of the following most nearly describes your attitude toward reading as a child?	0 **No help**	1 **Help from friends**	2 **Teachers/parents**	3 **Tutors or special class 1 year**	4 **Tutors or special class 2 or more years**
10.	How much extra help did you need when learning to read in elementary school?	0	1	2	3	4

Appendix D: Modified Perception of Barriers Scale

Each of the statements below begins with, "**In my future career, I will probably...**", or a similar phrase. Please respond to each statement according to what you **think (or guess)** will be true for you.

"In my future career, I will probably...."	**Strongly Disagree**		**Not Sure**		**Strongly Agree**
1. ... be treated differently because of my sex.	1	2	3	4	5
2. ... be treated differently because of my reading difficulties.	1	2	3	4	5
3. ... experience negative comments about my sex (such as insults or rude jokes).	1	2	3	4	5
4. ... experience negative comments about my reading difficulties (such as insults or rude jokes).	1	2	3	4	5
5. ... have a harder time getting hired than people of the opposite sex.	1	2	3	4	5
6. ... have a harder time getting hired than people who do not have reading difficulties.	1	2	3	4	5
7. ... experience discrimination because of my sex.	1	2	3	4	5
8. ... experience discrimination because of my reading difficulties.	1	2	3	4	5
9. ... have difficulty finding quality daycare for my children.	1	2	3	4	5
10. ... have difficulty getting time off when my children are sick.	1	2	3	4	5
11. ... have difficulty finding work that allows me to spend time with my family.	1	2	3	4	5
12. …have difficulty finding work	1	2	3	4	5

that provides adequate health
care benefits.

For each item below, **choose the response that best indicates whether it is a barrier to your educational aspirations.**

"Currently a barrier to my educational aspirations	**Strongly Disagree**		**Not Sure**		**Strongly Agree**
13. Money problems	1	2	3	4	5
14. Family problems	1	2	3	4	5
15. Not being smart enough	1	2	3	4	5
16. Negative family attitudes about college	1	2	3	4	5
17. Not fitting in at college	1	2	3	4	5
18. Lack of support from teachers	1	2	3	4	5
19. Not being prepared enough	1	2	3	4	5
20. Not knowing how to study well	1	2	3	4	5
21. Not having enough confidence	1	2	3	4	5
22. Lack of support from friends to pursue my educational aspirations	1	2	3	4	5
23. My gender	1	2	3	4	5
24. People's attitudes about my gender	1	2	3	4	5
25. My disability	1	2	3	4	5
26. People's attitudes about my reading difficulties	1	2	3	4	5
27. Childcare concerns	1	2	3	4	5
28. Lack of support from my "significant other" to pursue education	1	2	3	4	5
29. My desire to have children	1	2	3	4	5

30. Relationship concerns	1	2	3	4	5
31. Having to work while I go to school	1	2	3	4	5
32. Lack of role models or mentors	1	2	3	4	5
33. Lack of financial support	1	2	3	4	5

Appendix E: Basic Psychological Need Scale

Please read each of the following items carefully, thinking about how it relates to your life, and then indicate how true it is for you. Use the following scale to respond:

1	2	3	4	5	6	7
Not at all true			Somewhat true			Very true

1. I feel like I am free to decide for myself how to live my life.	1	2	3	4	5	6	7
2. I really like the people I interact with.	1	2	3	4	5	6	7
3. Often, I do not feel very competent.	1	2	3	4	5	6	7
4. I feel pressured in my life.	1	2	3	4	5	6	7
5. People I know tell me I am good at what I do.	1	2	3	4	5	6	7
6. I get along with people I come into contact with.	1	2	3	4	5	6	7
7. I pretty much keep to myself and don't have a lot of social contacts.	1	2	3	4	5	6	7
8. I generally feel free to express my ideas and opinions.	1	2	3	4	5	6	7
9. I consider the people I regularly interact with to be my friends.	1	2	3	4	5	6	7
10. I have been able to learn interesting new skills recently.	1	2	3	4	5	6	7
11. In my daily life, I frequently have to do what I am told.	1	2	3	4	5	6	7
12. People in my life care about me.	1	2	3	4	5	6	7
13. Most days I feel a sense of accomplishment from what I do.	1	2	3	4	5	6	7
14. People I interact with on a daily basis tend to take my feelings into consideration.	1	2	3	4	5	6	7
15. In my life I do not get much of a chance to show how capable I am.	1	2	3	4	5	6	7
16. There are not many people that I am close to.	1	2	3	4	5	6	7
17. I feel like I can pretty much be myself in my daily situations.	1	2	3	4	5	6	7
18. The people I interact with regularly do not seem to like me much.	1	2	3	4	5	6	7
19. I often do not feel very capable.	1	2	3	4	5	6	7
20. There is not much opportunity for me to decide for myself how to do things in my daily life.	1	2	3	4	5	6	7
21. People are generally pretty friendly towards me.	1	2	3	4	5	6	7

Appendix F: Career Decision Self-Efficacy Scale

The Career Decision Self-Efficacy Scale (CDSE-SF; Betz & Taylor, 2001; Betz, Klein, & Taylor, 1996; Taylor & Betz, 1983) is a 25-item scale, which utilizes a 5-point response scale with response options ranging from *no confidence at all* (scored as 1) to *complete confidence* (scored as 5). Respondents are asked to rate each of a series of statements reflective of career-related decision-making tasks.